

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[PRICE 6D.

SMOKE PREVENTION — CAUTION — DIRCKS and Co.

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MINING CORRESPONDENCE.

ENGLISH MINES.

EAST FORD MINING COMPANY.		
To cost for October and November	1894	9 10
Ca. - By ore sold 1st Sept.	2708	9 18
Dues	150	4 7
		2215 5 3
By ore sold	811	5 11
Dues	54	1 9
Spales received	737	4 2
		5 9 0
		2077 18 5
Profit		1176 8 7
In hand end of September		403 8 3
		2480 13 16
Dividend		850 0 0
		3330 13 16
Now in hand		3330 13 16
December 13.		

HOLBROOK MINING COMPANY.

HOLMSTEAD MINING COMPANY.
Dec. 12.—The lode in the 110 fathom level is eight inches wide, and worth 71. per fathom. In the 100 fathom level west the lode is ten inches wide, and worth 121. per fathom; at this level east the lode is small and unproductive; the cross-cut at this level, towards the Flaggack lode, is still driving in hard ground; the lode in the western stopes, in the back of this level, is twenty inches wide, and worth 261. per fathom. In the wine sinking below this level no lode has yet been taken down; the eastern stopes, in the back of ditto, being worked out. We have removed the men, to sink a wine below the ninety fathom level. In the eighty and ninety fathom levels, west of Hitchins's shaft, we are still driving to cut the lode; the lode in the eastern stopes, in the back of the latter, is eighteen inches wide, and worth 221. per fathom; the lode in the middle stopes, in the back of ditto, is eighteen inches wide, and worth 261. per fathom; in the western stopes, in the back of ditto, the lode is sixteen inches wide, and worth 221. per fathom. In the eighty fathom level east the lode is fifteen inches wide, with a small proportion of ore; in the cross-cut at this level, towards the north lode, we have intersected a branch, about four inches wide, composed of spar, musclic, and copper ore, and producing good stones of the latter; the lode in the stopes, in the back of ditto, is fifteen inches wide, and worth 221. per fathom. In the sixty-two fathom level we are still cross cutting to the north part of the lode. In the twenty fathom level east the lode is fourteen inches wide, of musclic and spar, intersected with ore. In the deep adit, east of Lady Bram shaft, no lode has yet been taken down. The pitches are without alteration. F. PHILLIPS.

WEGOLLAN MINING COMPANY.

Dec. 12.—In extending the sixty-two fathom level, east from engine-shaft, the lode is three wide in the ore part, and producing four tons of ore per fathom; the lode going west, at this level, is also large, and producing about the same quantity of ore per fathom; the ground in these ends is very favourable for driving—the price per fathom is 45s. The lode in the fifty fathom level east is at present producing but a small quantity of ore, but I expect the end will shortly become more productive, as we have good ore ground, coming down from the forty fathom level, before it. There is nothing new to report from the tribute department.

J. NIKKIS.

UNITED HILLS MINING COMPANY.

Dec. 13.—Seventy Fathom Level.—In the eastern end the lode is three feet wide, one foot producing ore of fair quality; western end, the lode is large, and one foot producing ore. Sixty Fathom Level.—In the eastern end the lode is five feet wide, coarse in quality; western end, lode four feet wide, two and half feet producing good ore. Fifty Fathom Level.—Lode four feet wide, one foot of which is good ore. James's shaft.—Lode three feet wide, eighteen cwt good ore. Forty Fathom Level.—Lode four feet wide, producing some ores of ore. No particular alteration in the pitches; those in the back of the sixty and fifty fathom levels are looking very well, particularly in the sixty.

S. H. FRASER. W. RICHARDS. N. LANGDON.

FREEOIL MINING COMPANY.

Dec. 12.—The lode in the forty fathom level, east of Williams's shaft, is twenty inches wide—very good tribute ground. The lode in Henwood's shaft, sinking under the forty fathom level, is fifteen inches wide—tribute ground. The lode in the forty fathom level, east of Henwood's shaft, is six inches wide—very good tribute ground; ditto, west of Henwood's shaft, is eight teen inches wide—good tribute ground. The lode in the thirty fathom level, east of Henwood's shaft, is one foot wide, producing good stones of ore. We have not discovered any more lode in driving south on the cross-course at this level. The tin lode which we are stopping in the back of the adit, east of Morrison's shaft, is much as last reported.

H. WILLIAMS. J. MORCUM.

REAL JEWEL MINING ASSOCIATION

WEST WHEAL JEWEL MINING ASSOCIATION.

Dec. 12.—The ground in the eighty-five cross-cut south is much the same driving, and we are getting on the south branch. The seventy east, on the south branch, is worth 37. per fath. ; ditto, on Wheal Jewel level, is worth 37. per fathom ; ditto west, has not been taken down in the work, but the road is more favorable for driving. The fifty-seven east is worth 124. per fath., and the wings under this level is worth 201. per fathom. No other level or wings taken down since our last.

S. LEAR.

THE CONTROL MIND COMPANY

Dec. 10.—The eighty, east of Christie, is eighteen inches wide, kindly, little ore; this level is discarded again by a cross-course; at this level we have not yet cut the lode. At the seventy west the lode is worth 50¢ per fathom. At the sixty west we are driving to get under Garden's shaft. At fifty west is two and a half feet wide, some good ore, and a kindly lode. At forty west is worth 60¢ per fathom. At Good Fortune the forty east is worth 40¢ per fathom; ditto west is worth 50¢ per fathom. The thirty-four north from 60, to 75, per fathom.

MINING NOTICES.

After the most careful examination of the mines, and the cost of raising, dressing, and smelting the ores, I was, unfortunately, obliged to come to the conclusion, that they, even on a reduced scale of working, could not be carried on without loss, unless very great reduction is effected in the smelting charges, which are still 27. per ton, or some improvement takes place in the lodes; and we have much cause to regret, that the investigation of the numerous lodes at Kaakard has not been carried to a greater extent in depth, as there remains yet much ground for exploration; and it can hardly be doubted that greater deposits of good ores will be found in the mines already opened, and in the districts where so many superficial discoveries have been made. It would have been extraordinary that the first mining attempts in a country entirely unknown, should have been directed to the good parts; most probable it is much good may yet remain to be done—still, though I entertain this favourable opinion of the district, and have given it every consideration, the discouragements we have experienced for some time past, and circumstances generally, would induce me, if I were called upon to devise a plan for carrying on the works with a fair prospect of success, to suggest and recommend a union of the Altai mines with those of Guelandine. These mines I did not not fail to visit, and although, from the snow having fallen, my survey was necessarily imperfect, yet I certainly saw sufficient to enable me to give it as my opinion that they are worthy of trial. There are several lodes here—the three principal ones are: the first, of the nature of Kalpas ore, but of an equally irregular, if not more irregular, character; the second, yellow pyrites, traced to a distance of 200 fathoms; a level has been driven on it for about twenty fathoms, on a regular uninterrupted course of ore, although varying in width from a few inches to upwards of a foot; the third, a deposit of copper and iron pyrites, according to a sample taken, averaging 85 per cent., as broken, of unascertained extent; this I should look upon, should it prove to be as represented, as the most valuable of the whole, and admirably adapted for mixing with the Kalpas ore. The proprietors of these mines would be willing to sell them, or to unite with the proprietors of the Altai

Alten are now in admirabl

The surface works at Alton are now in admirable order; the straking tables are found to be well adapted for cleaning a portion of the stamped stuff; the railroads and other arrangements which have been added within the last two years, all seem very well adapted to the ends in view, and, had the circumstances of the association been otherwise, the outlay would, no doubt, have been judicious. The great disappointment that has arisen from the small quantity of copper now received, arises from the delay at the commencement of the summer, caused by the rebuilding of nearly all the smelting-furnaces. Had this not been necessary, probably seventy tons would have been shipped to the Pine. All the smelting-furnaces are now in excellent order, and will not probably require any thorough repairs for twelve months to come. Before concluding this short report, I have still to add, that, in conformity with your views, I have made arrangements with the superintendent of the works to limit the operations at the Kaaford mines to such a supply of ores as may be required at the smelting-house for converting the ores already broken into copper, at the lowest cost for smelting, for which only such ores will be selected as will combine favourably with those from Kaapas, where, as I have already stated, the operations will be advantageous, if a sufficient supply of suitable ores can be obtained from other lodes for their conversion into copper. It is evident that this arrangement has in view principally the realization of the stores and materials existing at Alton, and that of obtaining copper from the ores already raised, but I am not without some hopes, even whilst these limited operations are pursuing, that yet some new discovery may be made, and enhance the present depreciated value of our properties in Finnmarken.

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MINING NOTICES.
LEAD MINES IN CARDIGANSHIRE—(From a Correspondent).—Operations in this county are rapidly extending, with every prospect of success. The mines of Nant-y-Cro, Eglwr Mwyn, and Graig Goch, held by Messrs. Bedford and Salmon, are progressing with every prospect of success, indeed, profitable returns are making from the former, the latter not being sufficiently opened, to arrive at any satisfactory results. The lode at Graig och, which is parallel with the celebrated Cwm Ystwith Mine, has been cut, and the engine is about being erected at Eglwr Mwyn—a mine which has yielded large profits at its former workings.

AVOIRWITH.—The lead mi

LEAD MINES IN AGRESTITWIT.—The lead mines in this neighborhood is a most flourishing state. Amongst the mines recently discovered is that of Aberffraw, the property of Frederick Richards, Esq., of Penegile, worked by Messrs. Parry and Attwood, solicitors, of this town. The mine is fully to be a source of immense value to the proprietor of the land, and is spirited lessees. They have already brought into the storehouse at this place several tons of lead ore, of excellent quality.—*Combridge.*

MISSION. We are enabled to

UNFORTUNATE COPPER MINER.—We are enabled to state that the rich copper mines of Antully, are again about to be worked with more vigour than ever. An unfortunate difference that occurred in the company last summer, caused a suspension of operations, and then the retiring of Mr. Cornish, who was the sole management of the affairs of the Keshmarr Mining Association, the trustee, prevented them from proceeding until he was got rid of by a sum of law, having been made a bankrupt and outlawed. R. W. Slevier, Esq., whom the company have confided the management of the concern, is daily sought of Keshmarr, to give directions for the most extensive working of the mines, which have already been resumed, giving employment to hundreds.—*Merch. Chronicle.*

VALUABLE DISCOVERY OF COAL.—Not less than six very valuable beds of coal, from three to nine feet in thickness, with a seam of cannel coal, have been lately discovered in the Headley domestic estate, adjoining the North Sea Railway, about five miles north of Wigan, belonging to Mr. Richard Kay.—*Manchester Herald.*

MINE ACCIDENTS.

Timber Piled Collingery.—On Tuesday as William Brodbery, aged nineteen, descending the inclined plane in this collingery, another miner was hauling empty waggon on to the endless chain, which missed its hold, and, falling with great velocity, struck the unfortunate young man so severely on the head, that he died shortly afterwards. At the inquest which was held subsequently, the jury, observing that no regulations were made by the proprietors for the safe descent and ascent of the miners, levied a demand of £100 on the chain, and so, on the waggon.

Finland Mine.—A large breakage fell with a tremendous crash, on Friday last; fortunately, the workmen had left the shaft, or the efforts would most likely have been disastrous.

Friday week, Thomas Lloy

Young Man Killed.—On Friday week, Thomas Lloyd was killed in the Park, on the Gung, by the roof partially falling in; he, with some other men, filling a train, when the accident took place.

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falling upon him.
 (John.)—As S. Parker was running a wagon down the gang way in the
 the wagon fell upon his neck and shoulders, and pressed his head into
 earth until he was suffocated.
 (George.)—David Jones was killed by a block of limestone falling on his
 at work.
 (William.)—S. Hawkins accidentally fell down the shaft of an ironstone

agrees that most of the Southern
area has drought.

GREENISH BLACK OF GRANITE.—There is just landed at Mr. Turk's, Greenwich, an immense block of granite, from the Hayter Co.'s quarry at Foggston, Dartmouth, measuring 19 ft. 6 in. square weighing twenty-two tons. It is intended to be used as a covering for the remains in Mount Green Cemetery.

FOREIGN MINES.

FOREIGN MINES.

ALGER MINING ASSOCIATION.

WOODGILL'S REPORT.—As the interests of copper for the year have now ended, I wish to draw attention to the present state and prospects of your great Alton, which I have so lately visited. Without giving much into describing the mines, I must say that the falling off, for which I was greatly by the Americans (although not by the reports) before I left England, manifested a damned alternative for the worse had taken place since I and Woodfill, two years previously. This was particularly the case as in Woodfill's, where the greater part of the actual resources are not considered well taking away. The eighty shafts hole earth, on which the great workings are now carried on, is, of course, and the two together only one and four-fifths ton per shaft, of 4-5 ton each, instead of two of 2-3 ton each, as was the case in 1867. Woodfill's hole immediately above and below the eighty, was still of likewise quality, but so irregular,

IRON TRADE IN SCOTLAND.

In the present state of the iron manufacture, and at a time when, from the advance of science, a continuous supply of this staple commodity of Great Britain may be calculated upon, every information bearing upon the subject must prove interesting. While the iron districts of South Wales and England have been so rapidly advancing, both in the quantity made, and in scientific knowledge, to enable them to insure quality, Scotland has not been idle. The production of iron in Scotland was 37,500 tons in the year 1836; it has since gone forward increasing till it amounted to 300,000 tons, or exactly eight times the quantity produced in 1836. The present rate of production is 270,000 tons per annum—a fact which we state on the authority of a very intelligent iron-master, who has given more attention to the statistics of the Scotch iron trade than any other man. So that Scotland alone now produces more, by about 50,000 tons in a year, than all Great Britain produced in the year 1834. The rich ore, called the black-band ironstone, is worked at small cost. The average strength of all the ores worked in Scotland at present, is about 32 per cent., and, in general, the convenient for railway or canal carriage. The average cost of iron is about 3s. 6d. per ton; and an evidence of the increase in the value of land, is given from the fact of an estate at Airdrie, fifteen miles from Glasgow, being offered for 15,000l., which now produces from 14,000l. to 15,000l. per annum. The iron trade has always been considered one of the safest, soundest, and most enduring of our commercial interests; and sorry shall we be, if the time should arrive, when, from diminished operations of railways, and other large outlets for its production, we should have to contemplate it with less cheerful anticipations. We trust, however, such day is far distant. In an article lately published in the *Bankers' Chronicle*, the writer enters into a long comparison between the produce of the two countries, and, with an evident bias in favour of Scotland, he endeavours to show that Britain has over-produced and over-traded, and that Scotland is as steadily advancing in the field of competition, opening for herself new markets abroad, and increasing her wealth and resources at home.

We give the following extracts, as being the conclusions at which the writer arrives. He says:—"This short review of the changes now in progress in the iron trade is submitted for the consideration of those who are most deeply interested in its prosperity, locally and nationally; and from it we conclude—money affairs remaining under the same regulations—1. That the production of British iron has of late years been in excess of all probable demand for consumption.—2. That the extreme limits of the demand for iron (under a restricted circulation of money) was pretty distinctly marked by the diminishing demand during the four years which elapsed after 1836, when the production of iron was forced down to a smaller quantity than that produced in 1829.—3. That the important fact of excessive production, compared with the natural and constant demand for consumption, was in a great measure hidden from the trade by the new demand for iron for railways and locomotive-engines in Great Britain and other countries, which sprang up about the year 1833.—4. That this new demand for railways cannot continue with the same force as in the period which elapsed from 1833 to 1841 inclusive, because of the diminished operations in constructing railways in England, the reluctance of capitalists to embark their money in such undertakings, since proof of their inadequate returns for it was obtained, and the protective tariffs of foreign countries.—5. That the annual production of iron in Great Britain must be diminished considerably, from the highest point, to afford any chance of a vent for it, at prices which will remunerate the capitalists engaged in the trade. After all, these speculations on the future, which at present appear to us rational and important, may be set at naught by new discoveries and inventions, which may so lessen the cost of production, as to render British iron admissible into foreign countries, notwithstanding hostile tariffs."

ECONOMY IN THE WORKING OF RAILWAYS.

During now twelve years experience since the opening of the Liverpool and Manchester line, the railway engineer has been gaining knowledge from practice, and continuous efforts have been making to lessen the amount of locomotive cost with various success. It does appear an extraordinary fact, that the working cost on some lines is actually double that of others, principally arising from the difference in the consumption of fuel. We believe the average quantity of coke used on the English lines is 40 lbs. per mile, while some few engines, we have been informed, will consume even considerably more than that; but as we now know that it is possible to erect an engine, whose consumption will not exceed 20 lbs. per mile, and yet, with a maximum load, at a speed varying from thirty to fifty miles per hour, we think it behoves railway engineers, and more particularly railway proprietors, to ask why the use of engines on old and expensive systems should be persevered in, when they have at command, by this single item alone, a saving of 5000l. per engine, per annum. We have been led to these remarks from having seen, in the *Mechanics' Magazine*, an account of the performance of the *Satellite*, an engine belonging to the London and Brighton Railway Company. She drew a well filled train of nine carriages, weighing, with the engine and tender, twenty-five tons; and up the first summit, where the rise is twenty feet per mile, or one in 264, she went steadily, without any apparent straining, at the rate of thirty miles an hour. On other occasions, she has dragged no less than seventeen carriages over the inclined planes, at the rate of twenty-eight miles per hour, and in more than one instance, she has gone the whole distance, from London to Brighton, at the rate of nearly a mile per minute. She came into active service the 23d of December, 1841, and since that period has run a distance of 30,000 miles, without requiring any repairs whatever, going off duty in turn one week in six, but merely for the purpose of overhauling and cleaning. For the accomplishment of this remarkable power, her average consumption is only 20 lbs. of coke per mile, or a quarter of a pound per ton, per mile. The superiority of this surprising engine, is not from any very great peculiarity or novelty in construction, but is to be attributed to the excellent beauty, strength, and correctness of the workmanship, and the philosophical principles of her build. The centre of gravity is low, and her back pressure less than usual, and she is altogether considered the finest locomotive ever worked; she is from the manufactory of Messrs. Kinnaird. Having this example before us, the question arises—cannot other engines be made, whose performances shall be nearly, if not quite, equal to the *Satellite*. The great saving which is here effected, shows how very much may be added, by judicious alteration and economy, to the interest paid upon the capital invested in these gigantic undertakings.

PROPOSAL FOR A NEW STANNARIES' HALL.

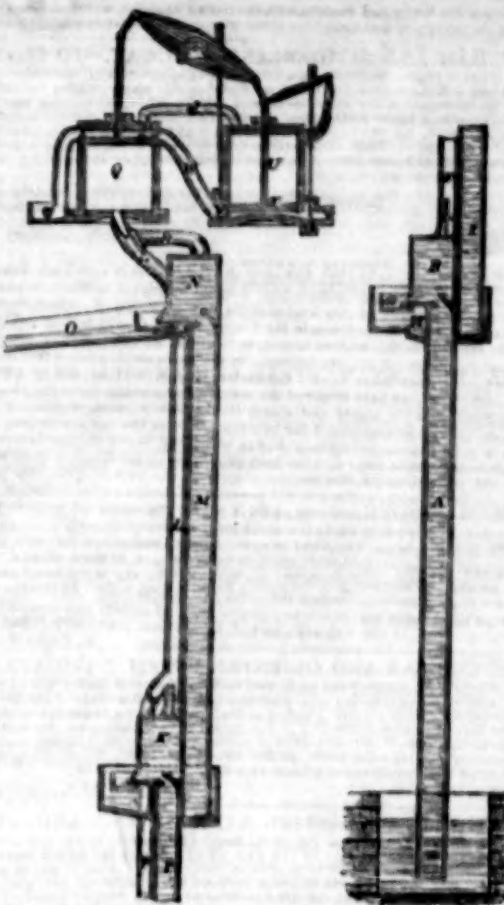
A movement, it appears, is about being made in the county of Cornwall, respecting the erection of a new Stannaries' Hall for the Vice-Warden's Court, and for business generally connected with the duty. From a notice published in the Cornish papers, we learn that the Vice-Warden would, for the six months commencing the 20th of September last, forego his claim upon the mining interest, granted by Parliament in aid of the funds of his court, of one farthing in the pound upon the value of all metals and minerals; and it is proposed that this donation, on the part of his honours, which amounts to about 7000l., should be raised and handed over, as the foundation of a fund for building a Stannaries' Hall, suited to the increased population, the dignity of the judge, the requirements of the miners, and the importance of the causes tried therein. We have not heard how the subscription has been taken up, or what chance there is of the proposal being accomplished; but, whatever may be the result, likely to prove advantageous to the mining community, our heartfelt zeal in its support may be depended on.

FRAGILE BRICKS.—Pambolonia, Strabo, and some other ancient historians, report that there existed in Spain an aluminous earth used for polishing silver, and of which bricks were formed, so light that they floated in water; these bricks were such good conductors of heat, that they might be held by one end, while the other was red-hot, and in 1791, an Italian, named Fabroni, made some experiments upon a silicious earth found near Santhiello, in Tuscany, he built a cup of the bricks on board an old vessel, and filled it with gunpowder, he then set fire to the vessel, which was completely consumed, without exploding the powder. In 1832, Tournefort, of Lyons, published a paper on this subject, he found these bricks were easily cut with a knife, and, therefore, recommended their use for moulds for casting metal, and on account of their lightness for various purposes in the navy, such as ships' benches, floors of engine rooms, magazines, &c. M. Ehrenberg has in his possession the most renowned of these fragments of earth, found in Italy, France, and Greece; and, during several years, has been employed in rigidly examining them. He has found them to owe their peculiarities to their composition, being a mass of silicious shells from invisible infusoria. One kind is found under the houses in Sicily, a brick made from which weighs under 2 lbs., and will float like wood. The strongest fire will not melt them, and even constructs them very easily. Their lightness and other properties, may, probably, bring them into use in Germany, Sweden, Denmark, and North America, if judiciously applied.

SEPARATION OF LEAD FROM BISMUTH.—Urgine percolates the oxides with carbonates of ammonia, and dissolves them in acetic acid; a strip of clean lead, the weight of which is known, is then put into this solution, so that the whole of it is covered. The vessel is closed and allowed to stand for some hours. Bismuth is separated in a metallic state, that which remains on the lead is washed off, and the strip dried and weighed. The bismuth is brought into a blue and washed with water which has been boiled and allowed to cool; it is then dissolved in nitric acid, evaporated, heated, and the oxide of bismuth weighed. The solution of lead is precipitated with carbonate of ammonia, and the oxide determined. The loss of weight which the lead has suffered gives the quantity of oxide of lead which was not originally in the solution.

NEW MODE OF RAISING WATER.

(ABSTRACT OF SPECIFICATION OF MR. WHEAT'S PATENT.)
(Communicated by the Publisher.)



The sheet marked B, represents my improvements in pump work for mines, wells, and other places, exhibiting a vertical section thereof, through a series of lifts, for the purpose of raising water or other liquids a distance of seventy-five feet, or thereabouts. In the construction of this apparatus, I take a length of tubing, as at A, to the extent of say twenty-five feet (but more or less, as occasion may require). Upon the top of this tubing I place a box, B, of dimensions suitable to the quantity of water, or other liquid, to be delivered at each stroke, and the bore of the water tubing must be suitable to the dimensions of the box. This box, B, is fitted with three valves, C, D, and E; the valve, C, being at the head of the tube, for preventing the water or other liquid returning, at the time the delivering valve, D, is open. The valve, E, is made of a floating substance, and has a rod attached to it, so that, on the water or other liquid rising in the water box, B, it may become elevated thereby, and close the tilted opening, so as to prevent the water or other liquid, rising in the air tube, F, G, is a box fixed round the delivery valve, D, and, being always full of water, keeps it perfectly air-tight. It is the reservoir for water, affixed round or under the box, B, and is of greater capacity, for the purpose of receiving the water delivered by the box, B, at each stroke. From the reservoir, H, another length of water tubing, I, similar in all respects to the box, B, is attached to the second box, K, which is fitted up in all respects similar to the box, B. The air tube, F, passes through or round the reservoir, and round the water box, into a second air-tube, L, ascending from the water box, K. A third length of water tubing, M, ascends from the reservoir last mentioned, and has at its head a water box, N, fitted up in all respects similar to the boxes before described, with this exception—namely, that instead of having a reservoir, a spout, O, is attached for carrying and delivering the water in the direction required. The air tube, L, is of larger bore than the previous tube, and rises till it meets with the air cylinder, Q. A small branch pipe, R, from the box, N, forms a junction with this air tube, L, below the cylinder, Q; so that, on the elevation of the piston, in the air cylinder, Q, caused by the vacuum created under the piston, T, in the steam cylinder, U, and also by the pressure of the atmosphere, in excess of the pressure required to support the column of water, or other liquid, in one lift, the air in all the boxes is thereby acted upon, and removed into the air tubes and cylinder; and water, or other liquid, takes the place of the air removed from the boxes. The theory of the action of this portion of the stroke of the engine, is founded upon the well known law of the pressure of fluids. Thus, assuming the pressure of the atmosphere to be 15 lbs. per square inch, and that this pressure will support in water a column of water of nearly thirty feet in height, it is evident that if the height of the column be fixed at twenty-five feet or thereabouts, there will be, on the head thereof, a surplus pressure of about 4 lbs. on the square inch, which is sufficient, taking all the lifts together, to overcome the friction of this portion of the stroke of the engine. The remaining portion of the stroke—that is, the downward stroke of the piston, S, or the stroke for delivering the water—is produced by admitting steam, at or about the atmospheric pressure, into the cylinder, U, under the piston, T, by the steam port, V, which, causing the piston, S, to descend in the air cylinder, Q, restores to the surface of the water, in each of the water boxes, a pressure equal to that of the atmosphere; the effect of which is, owing to the tendency of the water to gravitate, that the water is ejected at the delivery valves before mentioned. A pipe, W, is connected from the waste port, X, of steam cylinder, U, to the top of the cylinder, Q, through which pipe, on reversing the valves Y and Z, the steam flows, and is acted upon, and conducted by, a jet of water from the rose, a; and on the piston, S, attaining the summit of its stroke, ejected at the port, b, into the tube fitted with a water-tight valve, c. The cylinder is connected at its top by a pipe, d, which keeps on the surface of each piston an equal amount of pressure, the column of water of each of the cylinders being, at least, equal to the column of water of the whole of the water boxes employed. The valve, c, at the neck of the waste steam pipe, W, is for the purpose of preventing the water from flowing down it, on the elevation of the piston, S. The pistons are fitted with rods attached to a working beam, having parallel surfaces at either end, from which the valves, Y and Z, may be worked by means of tappets. The steam port, V, is connected with a steam boiler, proposed to be worked at high pressure, so that the steam may be wire drawn, and enter the cylinder at a low degree of elasticity. In starting this apparatus, it is first necessary, by means of an air pump, which can be applied to each of the water boxes in succession, to exhaust the air from all the water boxes; that the water may rise therein, the admission of the steam in cylinder U, under the piston T, causing the descent of the water in the boxes, and thereby obtaining the first portion of the stroke, when its condensation, producing a vacuum in the cylinder, U, the air returns from the boxes, in consequence of the surplus atmospheric pressure, and performs the remaining portion of the stroke. The engine might also be started by filling the reservoirs and water boxes with water, and employing steam at a somewhat higher pressure, till the whole of the water tubing was filled with water. In the invention of this apparatus, I do not limit myself to any size or form of tube, either longitudinally or transversely, nor to any particular dimensions or forms of valves, pistons, cylinders, rods, or other parts; nor do I confine myself to the precise figures or shapes, on either in the annexed drawings, as the same may be varied as found requisite; and to the use of any particular metal, or other material, for the construction thereof respectively; nor to any certain number of lifts between the well and the cylinders, nor to the exclusive use of steam. I do not claim, as my invention, the raising of water without the entering the working barrels of pumps, neither do I claim the invention of raising water by means of a series of lifts, by means of air tight boxes or cylinders. But I do claim the principle of the general arrangement and adaptation of the machinery described, and the particular application of the various parts of the same, as set forth in the description of sheet B, and the above statement thereof; and so the general arrangement, or some portion of it above described, without the steam cylinder and its appurtenances, under some circumstances, may be worked with advantage by water, manual, or other power, I also claim for my invention, or any portion or portions thereof, the use of applications of such power, or so many powers, as can be so applied.

PROCEEDINGS OF PUBLIC COMPANIES.

NATIONAL PROVIDENT INSTITUTION.

The seventh annual meeting of the members of this institution was held on Thursday, the 15th inst., at their office, Nicholas-lane. SAMUEL HAYGUEST LUCAS, Esq., in the chair. The usual preliminaries having been gone through, the report of the directors was read by Mr. MARSH (the secretary), from which it appeared, that, in the course of the year just terminated, 364 assurances had been effected, which was an increase over those effected last year; and, taking into consideration the long-continued depression of trade throughout the country, a much greater number than could have been anticipated—in the meanwhile, in the selection of lives proposed for assurance, the most scrupulous caution continued to be exercised. The total number of policies issued to the present time amount to 3215. The accounts had been duly audited to the 30th Nov. last, at which date the capital stock of the institution was 120,000l. 1s. 7d., which was invested with the Commissioners for the Reduction of the National Debt, and on mortgage conformably to the Acts of Parliament and the rules of the institution. The annual income arising from premiums and interest on capital in the same date was 30,360l. 2s. 7d. During the past year claims on account of the decrease of ten members had been submitted and discharged, amounting to 6000l.—At the conclusion of the report, the following satisfactory account was read by the secretary:—

Yrs. ending	No. of policies issued	AMOUNT OF PREMIUMS RECEIVED.	Amount of capital.
Nov. 30, 1838	610	Periodical. Single.	
" 1837	433	28,091 13 9	42,000 14 2
" 1838	450	18,879 9 11	14,344 17 9
" 1839	420	17,417 13 11	4,000 1 0
" 1840	420	23,007 9 0	4,961 1 11
" 1841	404	27,200 11 0	3,050 1 0
" 1842	387	26,083 0 4	3,700 10 3
" 1843	384	23,391 10 8	1,130 10 11
			100,000 1 7

Total number, 3215. A MEMBER wished to know when the directors would be ready to announce the division of profits?—The CHAIRMAN hoped about the middle of next month.—In reply to another member, the CHAIRMAN said he expected the new premises in Gracechurch-street would be ready for occupation in the spring of the coming year, and he had no doubt the members would think them not only eligible and commodious, but also an economical arrangement for the institution.

The report having been adopted, the former directors, and also Mr. Joseph Marsh (the secretary), were re-elected, who were tendered a vote of thanks for their able management of the affairs of the institution.

A vote of thanks was also passed to the medical directors and auditors, and likewise to the chairman, for presiding on the occasion, when the business terminated.

GREAT NORTH OF ENGLAND RAILWAY COMPANY.

A meeting of proprietors of this railway, resident in Newcastle, Gateshead, Shields, Sunderland, and neighbourhood, took place at the Clarendon Hotel, Grosvenor-street, Newcastle-upon-Tyne, on Saturday, the 10th inst.—The CHAIRMAN (Mr. A.M. Potter) said the meeting had been called, to enable them to discuss what measures should be adopted, to promote the interests of the great undertaking in which they had all embarked, it was obvious that the management had not been what it ought to have been, but without recrimination let them now put their shoulders to the wheel, get the affairs of the company into a train of good management, and he believed, standing as this undertaking did, as a great trunk line of communication, it would eventually answer the most sanguine expectations of the proprietors.—Mr. WATSON alluded to the proposed new branch, which was about being applied for to Parliament, to compete with the Newcastle and Darlington Junction, and which, if carried into effect, would be highly injurious. He also proposed to remodel the directory of the great north line, and that those gentlemen, who were directors of the Stockton and Darlington line as well, should withdraw. He then moved the appointment of a committee, to examine a draft address to the proprietors, and that copies be sent to every shareholder, and to the several railway boards, who had joined in the guarantee of 6 per cent. to the Stockton and Darlington line proprietors, which was agreed to. A motion was then proposed by Mr. JOHNSON, which, after some little discussion, was carried, to the following effect:—"That all directors, officers, &c., of railway companies should be free from any connection which will interfere with the impartial discharge of their duties."—Mr. H. WATSON moved that all present should pledge themselves to use their utmost endeavours to prevent the formation of the competing line to the Newcastle and Darlington Junction, which was also carried.—Thanks were then voted to Mr. Watson and the chairman, and the meeting separated.

BANK OF IRELAND.—The usual half-yearly meeting of the proprietors of Bank Stock was held on the 12th inst., in the Bank, the Governor in the chair. In announcing the usual dividend of 4 per cent. for the half-year ending the 25th inst., the Governor regretted he had to state that in order to enable the bank to pay the dividend, it became necessary to draw on the "rest" to the effect of 15,000l. This announcement caused great consternation among the holders of Bank Stock.

HIBERNIAN BANK.—The annual election for the officers of governor and deputy-governor for the ensuing year took place on Monday at the bank, Castle-street, Dublin. The ballot opened at eleven, and closed at three. Upon a scrutiny of votes, Mr. Robert McClelland, was elected governor, and Mr. John Charles Bacon, deputy-governor.

THE ARCHIMEDEAN SCREW PROPELLER.—The progress of the "Erebus" propeller, on the lakes and up the canals of North America, for which it is so peculiarly well adapted, from the capability of vessels thus propelled arriving at places entirely out of the reach of the paddle-wheel, appears to be considerable. The number of vessels thus equipped is now thirteen, including a Government steamer of the first class (500 tons). Arrangements are also making for building two more vessels for the Government, and Messrs. Merrick and Towne, of Southwark Foundry, and Messrs. Hogg and Delamater, of New York, who manufactured the boilers and machinery, as well as many influential parties interested in the navigation of the American lakes, are of opinion that Keelson's patent will be long be universally adopted, and eventually supersede, in the coasting trade, the use of sails.

THE BREWER NUISANCE.—One of the greatest difficulties experienced by the parties who have been most prominent in publishing their discoveries for the consumption of smoke, has been the inapplicability of those discoveries to all kinds of coal. What was perfectly effective as respects the coal of Lancashire, was useless as applied to some of the Yorkshire coal, and hence there has been great difficulty in bringing the consumers to agree upon the adoption of any principle which has been proposed to them. We see by the Bradford paper that a determined effort is now making by the police commissioners of that borough to purge the town of smoke, and that Mr. Billingsley, a large manufacturer, has adopted a plan in his mill which is not only effective for that object, but is also a considerable saving to himself in the consumption of fuel. He states that he can burn the worst sort of coal without putting up a smoke, and that his saving by so doing, is at least one-fifth of his whole consumption—that is, that eight tons of coals, with the improved smoke-consuming furnace, will perform the work of ten tons under the old system. Mr. Billingsley has offered his plans to the public without any reservation, but he has been met by a threat of prosecution from a party who complains that he has infringed upon a patent. The principal manufacturers of Bradford, however, have inquired into the matter, and as satisfied are they that the plan is effective and original, that they have determined to adopt it, and to defend any suit that may be instituted in reference to any patented right.—*Manchester Chronicle*.

SCIENTIFIC INSTRUCTION AND AMUSEMENT COMBINED.—At the present period of the year, when nearly all are seeking recreation, and when the leisure hours of our families more particularly require those amusements which, while they help to fill up the time, do so in a manner which covers the most valuable information to the mind, we cannot do better than hold up to the admiration and patronage of the public those institutions which, at great expense, upon schools of science to the undisciplined among our adult population, and, in numerous instances, train the first philosophical impressions, and lay an elementary foundation in the young mind, which produces in after life the richest scientific fruits. Among these institutions the PROCESSIONS OF SCIENCE, supported, as it is, by the wealth and intelligence of the community; a source of the arts and sciences is here open, at which the learned and the ignorant, the aged and the young, may alike reap benefit and amusement. Having, during the week, been favoured with a careful inspection, we are happy in being able to state, that the number of visitors shows no signs of decrease; the extraordinary success is still a novelty, the glacial electrical machines still "shocks" the admiring audience with pleasure, and the representation of the Aurora Borealis (northern light), &c., &c., as exhibited at our; the dining-hall, presents for exhibiting, and the other wonderful showing the grandeur of life in miniature, are watched with avidity and pleasure, and among the 1000 or 1200 interesting objects which will have been found, a few hours may in sport, which will form food for conversation for as many weeks afterwards.

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We find, by late advices received from Madrid, that a competition has arisen for working the celebrated Quicksilver Mines of Imaiden, which, as our readers are aware, yield a large revenue to the Spanish Government (lately held by the house of ROTHSCHILD), and from which the holders of Spanish bonds have to look, in a great measure, to the remittances for payment of dividends on the loans advanced by this country. It is stated, but with that truth we know not, for we are not disposed to place much confidence in the honesty or straight-forward dealing of the Spanish Minister, that he is acting, in the present instance, regardless of all private influence (a statement which at once establishes the justice of the opinion we entertain); in consequence of which, the Government is likely to obtain far better terms than heretofore. This may be good news to the bondholders, but how it will be received by those who are dependent on quicksilver in reducing their ores in Mexico and other districts, we will not say, although, we fear, it will have a considerable influence on the profits which the shareholders have been led to look forward to of late. The project for conducting the sale of the quicksilver through the Bank of San Fernando, appears to have gone off, for reasons with which we are unacquainted; and a tender is said to have been put in direct to the Minister (Senor CALATRAVA) by MESSRS. ROTHSCHILD—the terms offering a considerable advance on their last contract, which has been followed by a proposal on the part of other London capitalists, offering even higher terms. Such is the report; it being further stated, at, at the public auction, to which the Minister of Finance is bound to submit the contract for working these mines for the ensuing ten years, the produce of which is estimated at 100,000 quintals, a tender of 65 dollars the quintal will be given; the terms being, 50,000*0*00, immediately on the tender being accepted and the auction counted, and a further sum of 500,000*0*00, in twelve monthly instalments. It is further engaged, that the party so contracting shall pay to the mining establishment at Almaden 250,000*0*00, during the term of the contract, to provide the necessary funds for the working of the mines and the transport of the quicksilver to Seville, making in all 1,250,000*0*00, to be advanced in hard cash 1—no small sum to be embarked in Spanish mines by English capitalists. In addition to these terms, we find it is further provided, that, as soon as the advances, amounting to a million and a half sterling, all have been repaid (with interest, we presume) by the delivery of quicksilver, that each quantity shall be paid for within eight days on its delivery in Seville. Such are the terms stated as the basis of the proposed contract; whether they are put forward as a "sinecure," we know not, but we

have our suspicions—more particularly as advices, under like date (2d inst.), state that the money for the payment of the dividends on the stock of the Capitalised Coupons of the 5 per Centa, has been forwarded to London. If such be the riches of the mines of Almaden, we can well imagine that capitalists here should direct their attention to mines in Spain, and more especially to those where quicksilver is known to exist, although in comparative limited quantities—so far as they have yet been developed—while a rise in the price of the article will, doubtless, lead to further operations in other parts of Spain; many surveys, with this object, having of late been made, but with the results of which we are unacquainted.

Since writing the foregoing, letters under date the 4th inst. have been received, from which we learn that a new offer has been made by the Bank of San Fernando for the loan required of 400,000 proposing, if that offer was favourably received, to take the quicksilver of the Almaden Mines at 75 dollars per quintal—terms which before had never been thought of by any competitor. The agent for the London houses, adverted to above, has, we understand, increased his first offer, and proposed to advance 1,000,000 sterling in the first year in money, and to keep one-fourth of the produce every year in Seville or Cadiz, to be sold to the Spanish merchants for America. Truly, this quicksilver business is a matter of some moment.

We have endeavoured to collect some data of interest relative to the consumption and cost of quicksilver at the mining establishments in Mexico, and which, we regret, we are unable to place before our readers on the present occasion, from the rudeness and ignorance of certain secretaries. Our thanks are, however, especially due to the able representatives (holding that office) of the Bolanos, Real del Monte, and United Mexican Companies—the only exceptions—Mr. MAUDE's communication was courteous.

The letter of a correspondent, on subject of our remarks on the position of the Carn Irea Mines, and certain parties connected therewith, appears in another column. The writer is well known to us, and we have every reason to place entire confidence in his representations, but we are not equally ready to admit that the conclusions at which we arrived were erroneous. We have taken every course to ascertain facts—as we are told that we have been guilty of misrepresentation—but without avail. In the absence of such evidence, we adhere to the opinions we have before expressed, while we regret to find that matters are even worse than we imagined. We cannot but deprecate the course pursued by our correspondent, in attempting to uphold the shares in the way he has done in his letter, while we cannot agree with him as to the merit which he so gratuitously assumes to be due to the one party, for, we all know, "a good hat makes a good captain." There is much, we are satisfied, behind the scenes, and, although the committee decline affording any information, which our correspondent tells us we should acquire, we have no doubt but that, ere our next Number is published, we shall be in a position to say more. We are told that there is a party anxious to traduce the character, not only of individuals, but the mine, who have sinister motives—we have only to say, we know none of them, but we do know the two parties to whom we referred last week. We are still of the same opinion as then expressed—at the same time, it must be understood, that our remarks did not apply to Cornish agents generally, but to this particular case. Let the party aggrieved clear himself, if he can—we doubt it.

And so—the Court of Aldermen have met again, to consider the morality of Mr. Ald. THOMAS WOOD, of Talacre notoriety, and have again adjourned, having come to the following Civic-Legislative resolve, specially prepared by the COMMON SERJEANT, as the friend and adviser of the worthy Alderman—a civic functionary, forsooth!—

That all documents with respect to any charge to which reference has been made in the Court of Aldermen should be put in, and accepted by the committee. Ald. Thomas Wood having power reserved to him to refer to any other matters, as occasion might require.

A resolution to which the worthy alderman assented. Just a few words will place this matter in its proper light, and, while Mr. Ald. THOMAS WOOD complains that the Court of Aldermen wish him to stultify himself, let us see whether he and his friend the Serjeant are not endeavouring to stultify others. Mr. Ald. WOOD, a few days before the election for the Mayorality, begs that the Court of Aldermen will inquire as to the morality, if not the honesty, of his conduct in certain matters connected with the Talacre Coal and Iron Company, he having been held up to public exposure through the columns of the MINING JOURNAL. Thus would not admit of the inquiry, and this he well knew. Well, the election came on, and he was rejected by a large majority of his fellow-peers, although he even voted for himself. What was the consequence?—the alderman was put aside, and he then called upon the Court of Aldermen to investigate the charges which had been preferred against him, so that he might have his character cleared, and left unstained. The court replied that they knew not in their aldermanic capacity, of any charges against the worthy alderman, but if he would submit the charges, and was anxious to clear himself from the imputations conveyed through the columns of the MINING JOURNAL, or any other source, they would oblige him (indeed, a duty, under such circumstances, they owed themselves) by entertaining the question. Accordingly, a committee was appointed, and a meeting held, a report of the proceedings of which were inserted in the Journal. An adjournment took place, and the second meeting was held on the 10th inst., a brief notice of which we have inserted elsewhere, and the resolution above was carried. Now, a word or two for ourselves. We have made certain charges against Ald. THOMAS WOOD—we are prepared to prove them. Is that sufficient, or is it not? Let the Court of Aldermen call upon us, or let Ald. THOMAS WOOD, for he is bound to do so, if he values his character or reputation. The resolution is one of the most jesuitical kind that could be penned, and we want no evidence that it emanated from a lawyer. The COMMON SERJEANT may be professionally engaged, and, if so, he has earned his fee. We argue that the inquiry will end in smoke, but, in such case, we shall have something to say to those who have lent themselves to the result.

In another column will be found the specification of Mr. EMERLE's patented invention for raising water, whereby, we are further given to understand, a saving of one-half the quantity of fuel, ordinarily consumed, is effected. We have not had an opportunity of seeing the machinery at work, but, having consulted the drawings accompanying the specification, which we have introduced in our columns, we are ready to give to the patentee full credit for the merit of his invention, although its applicability remains yet to be proved. The main objection appears to us to be, the space required for the cistern, or reservoir, into which the water is discharged; if this inconvenience, we are told, may, in a great measure, be remedied by a different form of construction of the box. As the water is not contemplated being raised more than twenty-five to twenty-eight feet any one lift, this frequent occurrence of boxes being necessarily fixed, appears to us, at first sight, a serious objection. A plan, on the atmospheric principle, was patented by Mr. HANCOCK, which was described fully in our columns, but in that case steam was not applied; in the present, it will be observed that it is applied to working the piston, and that the air in the boxes, being acted upon and removed into the air-chests and cylinders, is replaced by the water. It is not, however, our object to enter into details, which are defined in the specification; but, considering the plan as one, if practically useful, to be such as to secure economy, it is with pleasure we direct attention to its merits.

THE SMOKE NUISANCE.—MR. WILLIAMS AND MR. HALL.

The dispute or discussion between Mr. C. W. Williams and Mr. Samuel Hall, on "the smoke question," has been brought to a close, both unexpectedly, and unsatisfactorily, whether the latter be considered with reference to the disputants, or the public. Most certain it is, that the expectations of many besides ourselves, have been sadly disappointed; after having been lured to go through the particulars of the birth, parentage, and education of the respective parties, without arriving at any satisfactory results—for the question appears to be as much at issue at the present moment, as when each took upon himself to wield the pen, and strip his adversary of his borrowed plumes. Mr. Samuel Hall having withdrawn from the arena of discussion, for reasons best known to himself, and thus left Mr. C. W. Williams in the position of victor—or placed in the situation of crying to his own emotions—the latter gentleman has retired from the contest, it could be as designated, when, of late, the allegations and arguments were all on one side. Perhaps the one, or the other may have had in their recollection the lines from *Andrius*, that—

He who fights, and runs away,
May live to fight another day.

Be the cause, however, what it may, it is quite clear that Mr. Samuel Hall was the first to show the white feather; and, either in duce, or for want of argument or fact, left his adversary in possession of the field, without attempting to remove him from his vantage ground, while, we confess, Mr. Williams has hardly gone so far as we expected, although he may consider that, under the circumstances, he has gone far enough, and wishes not to take advantage of a fallen foe. We have, in the course of the controversy, observed on the personal character which it at times assumed; columns being occupied by denouncing the personal merits, or demerits of the respective writers, while the main subject, in which the public could feel any interest, was comparatively lost sight of, merging, as it did, in the question not alone of to whom the merit was to be awarded, and the priority of claim (even assuming the merits of the several patents identical), but the competency of the one or other to invent, or judiciously apply the invention. Having taken an interest in the question, and, moreover, having had opportunities of examining the specifications of both gentlemen, we propose taking a resumé of the correspondence, and those points which appear to have led to a discussion which has terminated so unsatisfactorily; and in so doing, shall endeavour to avoid both Seylla and Charybdis—by confining our remarks to the only question at issue, and pursuing an even course—not only the merits of the relative patents being a question of fact, in part demonstrated by evidence, although imperfect as to the comparative merits; but the fact itself, of the priority of claim, and identity or otherwise of the patents of late date, being, in our opinion, the important facts we are called upon to establish by past evidence, or endeavour to elicit by further inquiry. Having said thus much by way of prelude, we proceed to the consideration of the claims of both gentlemen, and which may be thus described:—1. Are the patents of Mr. C. W. Williams and Mr. Samuel Hall identical? 2. If so, to whom is the merit due for originality? 3. If not identical, how far does the one infringe on the other, and does it render the patent invalid of either, and which? Such appear to us to be the prominent points of inquiry, and to these we shall confine ourselves. In the year 1838, Mr. Samuel Hall took out a patent, having for its object the passing of atmospheric air through cast-iron pipes, or tubes, in the flue leading from the boiler to the chimney, so as to mix with the smoke or inflammable gases evolved from the fuel, the air being heated to about 300 degrees temperature, and coming in contact with the gases at the front of the furnace. Mr. Hall claims, under this his first patent, the use of hot-air for consuming smoke, in whatever way the air may be heated, provided such hot-air is introduced at the front of the furnace. In 1839, Mr. Hall took out another patent, which appears in the early part of the controversy to have been lost sight of, and was unknown to Mr. C. W. Williams; for he subsequently complains of this patent not having been made known—a matter we purpose treating upon hereafter; and this patent, he (Mr. Hall) contends, is a continuation of that of 1838, being an improvement on the invention claimed in the first patent, of which it formed an integral part. This patent, however, appears not to have been perfect in itself, or in combination with that taken antecedent, and hence the necessity of a further patent being secured in 1841 by that gentleman, Mr. Williams having, in the interim (1839), taken out his patent, under which he lays his claim. The position of Mr. S. Hall, so far as we can collate from his letters, and the information we have acquired from the reports of the committee, is that gentleman, since then, appears to amount to this—that Mr. C. W. Williams claims the introduction of atmospheric or cold air, or cold air, to the extent of two-thirds the length of the boiler, to be heated in its passage, and then enter into combination with the gases—Mr. Hall, on the other hand, claims to introduce cold air through apertures, surrounding the fire-box; in addition to which, a portion of cold air passes through tubes in the boiler, and the smoke-box, thus making a direct continuation to the fire-box or furnace. The question, assuming this description of the patent of Mr. Williams of 1839, and that of Mr. Hall of 1841 to be correct, then follows—Does Mr. Hall, in carrying his air direct to the furnace, coming immediately in contact with the flame, before passing the bridge of stationary cylinders, or entering the fire-tubes of locomotives, infringe in any way on the patent secured by Mr. Williams; which, according to Mr. Hall's letters, is confined to the introduction of atmospheric or cold air beyond the bridge in stationary engines, where it comes in contact with the gases evolved, and one-third the length of the fire tube, beyond the point of entrance of the flame in locomotives? This, to us, appears to involve a question in itself—whether the plan of invention, of admitting air in front of the furnace, or before the bridge, is identical with that patented by Mr. C. W. Williams, in introducing jets of cold air from the sides or rear of the furnace, so as to intercept the flame in its passage, after having passed the bridge, and whereby he forces the combination by admixture of atmospheric air with the flame, smoke, or gases, in their escape towards the chimney or stack? The next question which arises, without determining on the identity of the two plans, is, as to the introduction of atmospheric or cold air—whether, before or beyond the bridge, by Mr. Hall, his first patent, on which he depends—that of 1841, being subsequent to Mr. C. W. Williams—being, as he contends, part and parcel of the first and second patents taken out by him, antecedent to that of Mr. Williams in 1839? for on this must depend the right of claim of one or other of these gentlemen, and this appears to be a difficult point to decide. If that Mr. Hall's patent of 1841, be a continuation of that of 1838, and if, by the former patent, he was entitled to use atmospheric or cold air, we think Mr. C. W. Williams has no grounds on which he can maintain a patent, without it, as on the different mode of application before and beyond the bridge; but if, as is asserted by Mr. Williams, and so truly does appear on the face of the specification of the first patent, that he (Mr. Hall) proposed to furnish a supply of heated air, then where lies the claim to the application of atmospheric or cold air? This does appear to us to be the main point to decide upon—whether, having secured a patent for the admission of hot air, he could avail himself of subsequent inquiries or discoveries made by others, as in Mr. C. W. Williams's case, of superheating the use of heated air, by employing atmospheric or cold air. It may be said, that in such case the air, when first introduced, is cold air, being of the like temperature as its entrance into the apertures or tubes, but necessarily becoming heated to a certain extent, in its passage to the point of admission or delivery, where it comes in contact with the flame or gases—Mr. Williams telling us that he prefers cold air, as superior to its effects, while Mr. Hall, by his patent of 1839, proposes taking the atmospheric air in at his apertures, but attributes to its being heated in its passage the obtaining a greater power. The principle he (Mr. Hall), then, contends for is, that he introduces atmospheric or cold air, but which becomes heated in its passage, and by which patent he considers he can lay claim to the application of cold or hot air; and, moreover, that, in his last patent, it is but another mode of applying a principle which he had secured in 1839, by a difference in the combination of the arrangements of his apertures, in allowing the cold air to enter round the fire-box, and come in contact with the hot air introduced into the flame. This is Mr. Hall's case, if we understand him rightly. This, however, is not the view taken by Mr. C. W. Williams, who contends that if the patents of Mr. Hall, of 1838 and 1839, were in themselves good, whereby they establish the priority of claim embraced in that of Mr. C. W. Williams's patent of 1839, then that there was no object in taking out the patent of 1841; but as he is of opinion, that the patents of 1838 and 1839 are confined to the use of hot air, and the patent for the introduction of cold air having been taken out by Mr. Williams, he (Mr. Hall) wishes, by taking out the patent of 1841, in the former, to avail himself of the discovery of Mr. Williams, and, however imperfect might be the mode adopted, at once to place the principle. We, then, arrive at the question—Mr. Williams's patent of 1839 on superheating of Mr. Hall's patents of 1838 and 1839; or Mr. Hall's patent of 1841 on improvement of that of Mr. Williams's of 1839? One another case, we think, be the conclusion at which a legal decision must arrive, and, as it is a simple one, we repeat of fact, and the construction to be placed on the terms in which Mr. Hall's first patents were specified, our opinion is, that the former the point is determined, the latter for all parties. We have thus endeavoured to describe the relative positions and claims of the respective parties, and shall be glad to learn that the view we have taken is correct, with facts, put forward in the communication which has appeared on the subject in our columns; or rather, that we have, in conducting the correspondence, explained the views of each gentleman. The views laid down by the committee on large, in the view to be attached to the use of cold air of the parties; and as we have reasons to believe that certain measures will be adopted by Parliament, for securing in the public these advantages which would be obtained by the prevention of smoke, and so it has been satisfactorily proved that such can be effected, with a saving to the consumer in the quantity of fuel employed, we doubt not but that the agitation of the subject will be again renewed.

ORIGINAL CORRESPONDENCE.

BLACK-BAND IRONSTONE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The excitement occasioned by the publication of my letter in the *Mining Journal* of the 26th of last month, respecting the existence of the carboniferous, or black-band, ironstone at Beaufort and Nantyglo, has extended itself over South Wales, accompanied by a spirit of research and discovery, which is likely to be attended with the most beneficial results. Already a bed of this valuable ironstone has been found in the anthracite district, and forwarded to me for examination; the practical analysis of which I give as follows:—

Volatile matter discharged in smelting, consisting of carbon, carbide acid, hydrogen, &c. 36.75
From 100 parts of ironstone, containing 44.45 per cent. of iron, 4.45
Oxygen 14.7
Earth 7.63

Total 100 parts. 100
Common roasted ironstone supposed to contain—
Iron 44.45 per cent. 44.45
Oxygen 14.7
Earth 7.63

Total 100 parts. 100
One ton and a half of this black-band ironstone will, within a small fraction, make one ton of pig-iron, the earthy matter in which will be represented by 11.24 per cent., or, in round numbers, by 11.24 per cent. 11.24
Two tons and a half of roasted ironstone, such as is in common use, at 40 per cent., will also produce one ton of pig-iron, the earthy matter in which will be represented by 44.45 + 44.45 = 88.90 per cent. 88.90

Being fully six times as much earthy in the one case as in the other, and, consequently, requiring in the furnace an additional quantity of fuel in proportion to that difference. But this is not the only advantage to be derived from using this particular class of ironstones; the quantity of limestone required in the blast-furnace being in proportion to the earthy matter in the ore, less than half the quantity would be required in the production of a ton of pig-iron, and the fuel necessary to fuse this difference saved. These advantages, however, to their fullest extent, I am of opinion, cannot be derived from the black-band ironstone without the use of hot-blast, for the reasons assigned in my work on Iron, p. 424. One very curious, but consistent, feature in this ironstone, considering the district in which it is found, is, that the carboniferous matter exists in the state of anthracite.

DAVID MURPHY.

Coleford, Dec. 14.

[We propose referring to Mr. Muesel's work in an early Number, immediate attention to which is the less important, as we presume it to be in the hands of all who are interested in the iron trade. The discovery of a bed of "black-band" in the anthracite district adds in the value of the patents secured for the manufacture of iron by hot and cold-blast with anthracite, in which as considerable a space in our columns is devoted, and we heartily congratulate Mr. Muesel, on that portion of South Wales, as well as Scotland, being the field of his discoveries, and, as we hope, that of his success, as well as those who may avail themselves of the result of his practical inquiries and investigations.]

THE MINING INTEREST.—MR. BASSETT'S PAMPHLET.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—It has been a matter of surprise to me that no Cornishman has made any remarks in your *Journal* on your comments, or review, of Mr. John Bassett's pamphlet, and, as you appear to me to have formed an erroneous opinion of the principles entertained by that gentleman, I trust to your liberality to give insertion to the present, and to your candour to admit the correctness of the views I entertain, should you, on a perusal of the pamphlet, consider that I am right in my conclusions.

I am perfectly satisfied, had you an intimate acquaintance with the principles of that gentleman, who is so closely identified with the interests of the county of Cornwall generally, and not less, especially, the mining interest, which you so strongly advocate (and which, therefore, I take as palliative of the opinions you have expressed in your comments), I feel assured you would be ready to admit not only that you were in error, but that you had unwittingly given expression to opinions hastily formed on fallible grounds. It is not my intention to enter on the subject of the tariff—its advantages or disadvantages to any native country. I may have had my apprehensions, which, if not entirely dispelled, yet are allayed, in a great measure, by the experience of the past few months, as the imports from Cuba, if I may judge from communications lately received from parties of undoubted respectability and veracity, are likely to be lessened—and we have ample proof of the quality of the ore deteriorating. In the meantime our mines are going on, and if we are not making profits equal to our desires, we are at least giving employment to the working miner—the object which, I believe, not only myself but Mr. Bassett, and every honest Cornishman, has at his heart's desire.

It appears to me, from the lengthened notice taken of Mr. Bassett's pamphlet, that you were desirous of maintaining your ground—that you were anxious to upset all doctrines or opinions opposed to those you had put forward, and hence that you may have taken, in one or two instances, extreme views, such as facts, if calmly considered, would not warrant. I may be wrong in this conclusion, but I think that, if I draw your attention to the paragraph in Mr. J. Bassett's pamphlet, of p. 15, wherein he discusses being an advocate of free trade, while he would remove these restrictions on commerce which retard our prosperity; by the removal of which, reciprocal advantages would be yielded to this and other countries. You will allow there is a strong line of demarcation to be drawn between the free trader and the advocate for the partial removal of restrictions which tend to the injury of the country, without producing any benefit, and which latter are the principles and views entertained by that gentleman. Mr. Bassett is, in my opinion, the steady sturdy conservative in principle, whether affecting our constitution or the interests of the mining, the agricultural, or the agricultural community, and so forth I should wish you to estimate him. That his object was most primarily in getting forward his pamphlet, to secure the working miners that all were not "slaves in sleep's clanking," you will admit; and if he should have entertained more sanguine views than yourself of the effects of the tariff, you will, I feel assured, at least do him the justice of saying, that his arguments, if not forcible, were such as to put forth of the gentlemanly and amiable character which represents the man; and that if his opinions were overruled more plainly than others which have been in point, yet he was equally entitled of the main point; and, further, that, although liberal in his views, with a due regard to the protection of the interests of the community at large, and more especially those directly allied with his own, he retained no disposition to be carried on the list of "free traders."

Yours, Dec. 15.

A CORNISHMAN.

[We have received some brief observations on the letter of our correspondent to another column. We have not yet seen the letter, and if we see it, we will in due season make it public. We think, in the present instance, we must "give and take."]

MANUFACTURE OF IRON.—EXPERIMENTAL COMMISSION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I altogether disagree with you as to the proposed plan of sending a commission through the iron districts, to make experiments and reports upon the comparative efficiency, economy, &c., &c., of working iron with hot and cold-blast; it would be of no general advantage, however particular interests might chance to be benefited by it. Steam, gas, and other sources of the present day, have been called into existence, and lately universal adoption, without such aid—if it can be proved—and (without reference to the merits or demerits of a system) I maintain that he is good, or he is bad, his merits or his demerits will not necessarily be brought about by a proposal of this nature. Individual ingenuity and energy have always been, and always will be, the secret means of obtaining successful results in art and manufacture, and of developing and appropriating the properties and powers of material, whether natural or artificial. When such a commission is instituted, I should be glad to know what parties, having satisfied themselves and their constituents, of the advantages of the process and of the unquestionable quality of the product, could then on appeal to a higher authority, or, being submitted to the ordeal, would on down quietly under the law of a supplementary report? None, surely, would be so stupid. Every one working iron, has a practical acquaintance of smelting whether or not a good article can be produced by hot or cold-blast, and the list of Mr. Muesel or Mr. Phillips would not show facts—if it could meet so far as to convert facts, or opinions

in, their prejudices, certain self-styled civil engineers addicted to lecturing, or certain gas directors, just now taking great delight in conquering between hot and cold-blast. As to the question of economy, the manufacturers' accounts will always dispel any doubts he may have on the subject. Nor does the alleged fallacy of an ironmaster, making experiments with his own iron, afford any good ground for this conclusion. Nothing can be more reasonable than that when his mode of manufacture is attacked, and the character of his iron damaged (and he is conscious unjustly), through ignorance, prejudice, interest, or malevolence, he should take this (the readiest) step, to counteract the probable effects of the imputation; and in publishing his results, he, at once, invites his friends, and challenges his enemies, to verify or refute them by their own experience. Of course, the degree of credit attaching to the first instance to such publications, will, at all times, mainly depend upon the estimation in which the parties issuing them may be held; and we are guided by this feeling in all our transactions, from the most important down to the most insignificant; but it is not the dictum of one man, or of one set of men, which should invalidate the assertions of persons of credit and respectability. I am led to make this remark, from having noticed in your paper of Saturday, a communication from Mr. Henry Hartop (the very Doctor Slop of hot-blast), wherein, he, I think, unfairly, throws out insinuations against the genuineness of some experiments recently published by you. To conclude, when proprietors or speculators are desirous, through the judgment of capable and disinterested parties, to ascertain the properties and availabilities for particular purposes, of coal, mineral, &c., or the eligibility or otherwise, of any given method of manufacture, the commission proposed might be of essential service; but it would be vain to institute it with a view, summarily to convince those inimical to hot-blast, that they are in error, or (even were Mr. Hartop himself at its head), to render those favourable to it, disposed to forego the advantages which they are satisfied they derive from it.

London, Dec. 14.

[Our correspondent should have furnished us with his name, but as the subject is creating considerable interest at the present moment, we adopt his communication, whether signed "Alpha" or "Omega." We should apprehend, from the tenor of his letter, that he is an ironmaster, who, for certain reasons, would wish to "let well alone," or, at least, that he does not contemplate he would be "lettered" by any inquiry. Let it be so, as far as he is concerned, but the question is one of vast importance, and it will be remembered that our attention was directed more especially to the anthracite district, and to the prospects for the application of hot and cold-blast taken out by Mr. G. Crane and Mr. Budd. "Omega's" arguments possess but little reasoning, and we apprehend neither his strictures nor his dicta will be taken as convincing proof of the correctness of the views entertained by him. Facts are stubborn things—let us have them, and we can form our own opinions, in the meantime we thank "Omega."]

COMPARATIVE MERITS OF HOT AND COLD-BLAST IRON.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I observe, in your last publication, that Mr. George Crane, of the Ynisdwyn Iron-Works, has very handsomely responded to your suggestion, of a subscription to be entered into by the ironmasters of Great Britain, to test whose iron is the best and strongest, and has offered 50*l.* towards such an object. Placed as the Ynisdwyn cold-blast anthracite iron is, for strength and elasticity, by Mr. Mushet's report, at the head of British iron, I readily follow Mr. George Crane's example, and am willing to subscribe 50*l.* to a fund to defray the expenses of experiments to be made on the qualities of the iron manufactured in the United Kingdom. Persuaded, as I am, that nothing has tended so much to prevent anthracite iron from attaining the place it deserves in the estimation of consumers, as the sale under that name of large quantities of inferior iron, made with predominant mixtures of coke, I hope the proposed investigation will determine in what proportion, if any, coke can be used with stone coal in the furnace, without imperiling the anthracite character of the iron. Therefore, parties would, I trust, feel, that to sell as anthracite iron a metal only partially suited with that fuel, would be a departure from mercantile probity and honour. The tempting facilities which the use of coke with hot-blast gives to run out large quantities of inferior iron are well known, and make the strongest precautions necessary. I have never seen it stated that cold-blast injured the quality of iron, but the contrary has been strongly asserted, and is widely believed of hot-blast, and, if the opinion be well founded, I see no reason why there should be an exception in the case of stone coal. Mr. George Crane proposes to add to the inquiry into the strength of iron, an examination into the cost and facility of the hot and cold-blast processes. Some parties may think that the cost of iron is rather the affair of the maker's than of the consumer's, and, although I should naturally prefer to delay any public statement on the subject until I had completed my specification, yet the result of the experience I have had of both processes has so prepared me to show the superior economy of the cold-blast anthracite process, patented by me, over Mr. Crane's hot-blast, that I readily consent to include it in the scope of the proposed inquiry. Mr. George Crane very properly remarks that experiments should be made by third parties, not interested in the results. This rule I have scrupulously followed; as the alleged improvement in the iron manufactured at Ynisdwyn is entirely unopposed by such testimony, I am not required at present to notice it. I highly approve of the gentleman he has suggested—Messrs. Mushet and Fairbairn.

Falslyfira, Dec. 12.

J. P. BURN.

[The letter of Mr. Budd can only bear one construction—that of liberality, and a desire to arrive at a perfect result. We feel assured it will be followed by others, but even as regards anthracite, if confined to that description of fuel alone, it is valuable, and we hope that Messrs. Mushet and Fairbairn, to whom we have addressed commendations, will accept the offer.]

COMPARATIVE ADVANTAGES OF HOT AND COLD-BLAST IRON.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The letter of "Scout" which appears in your last week's paper, is of an astounding nature, if his deductions—or, rather, I might say, his additions—be correct, and it is simply with the view of preventing any misapprehensions on the part of those who are not conversant with the application of the hot and cold-blast that I now draw your attention to that gentleman's figures. He tells us, that in producing 221 tons 18*l.* out of pig-iron by the cold-blast, he used 2534 tons of coal, or 10-11, and that in the works of 287 tons 19*l.* out of pig-iron with the hot-blast the consumption of coal was only 1333 tons, or 2-3. I have no right to doubt "Scout's" statement, as it professes to be taken from the books, but I must say, that I believe his are the only works where the like quantity of fuel was ever used. Even with hot-blast, I think he had better "make" his loss, rather than more iron. Perhaps, he will state the size of his furnace, or its capacity with cold-blast he only ran 24 tons 13*l.* out, per week, and with hot-blast 43 tons. This, with a relative consumption of 10-11 and 2-3 of coal, in the shape of coke, could have no very satisfactory results. Depend upon it, Sir, this is an exception to the general rule, and must not be taken as evidence of the great economy of the hot-blast, or the bad business doing by the ironmasters.

A KERRAN.

Sheffield, Dec. 13.

ANTHRACITE IRON—HOT AND COLD-BLAST.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—In common with yourself, I had a difficulty in arriving at a satisfactory conclusion with respect to the experiments made at the Ynisdwyn and Ynisdwyn Works (the former being with hot-blast, and the latter with cold) from the circumstance of their being under different circumstances. As Mr. Mushet has addressed you one or more letters of late, in addition to his very interesting and valuable report, he would, perhaps, commend to give us a rule, whereby, comparing the experiments at Ynisdwyn to have been made with coke, and the results as described in your Journal of 24 inst., correct, that we may be able to compare the breaking weights, power of resistance, &c. To comply again to the report of Mr. Mushet, on iron made at Ynisdwyn with hot-blast, and at Ynisdwyn with hot and cold-blast, I find the following results.—Ynisdwyn anthracite cold-blast 26-5, strongest than Ynisdwyn hot-blast, with anthracite and coke; Ynisdwyn anthracite cold-blast 22-5, strongest than Ynisdwyn, with anthracite alone; I would, of course, conclude from this, that the experiments were made under similar circumstances, and that would be, I think (judging from) conclusive evidence of the superiority of the former, but as it might be supposed, that the iron collected from Ynisdwyn was not of the best quality, while there can be no doubt but that of the other works was; I think the only fair mode of testing the merits of the two descriptions of iron, is to submit a series of experiments to Mr.

Mushet and Mr. Fairbairn, or Mr. Evans, to report upon, whereby the fact would be clearly ascertained. I agree with you that to the trade it is not a matter of so much moment, for they are guided, in a great measure, not only by the price of the article, but the result of their experience on a practical and not an experimental scale, as to its quality. As to the price, however, at which it could be manufactured, that forms an important feature, as does the description of fuel calculated for the purposes, as these considerations must necessarily have weight, as regards the adoption of one or other of the patents. In this respect, the landed and mineral proprietors are much interested, and as one I shall be happy to contribute my mite towards any fund which may be raised, for arriving at these desiderata. I think we are much indebted for the liberality with which Mr. Crane has come forward, and I feel assured that the company of the Ynisdwyn Works, with Mr. Budd, will be glad to aid you in arriving at results, which can allow no question of bias or prejudice, having influenced the parties by whom the experiments are made. I had almost forgot to mention that there is one class of consumers of iron who must feel a more than common interest in the result of an investigation of this nature—I mean the directors and engineers of railway companies, the late fatal accidents on the Versailles and London and Birmingham Railways, from the breaking of an axle, rendering it indispensably necessary that every care should be taken to secure the most perfect iron for the axles and other parts of locomotives.

A LANDED PROPRIETOR.

Swansea, Dec. 14.

[We refer our correspondent to the letter of Mr. Budd, in our present Number, from which he will find that his expectations have been anticipated by that gentleman.]

ON THE FORMATION OF MINERAL DEPOSITS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Your correspondent, "Fer," supposes I did not get my mining knowledge at Oxford and Cambridge—in that he is quite right, nor did I ever know a practical miner that obtained his learning at those seminaries. Then Mr. Fer charges me with self-esteem; I plead guilty—Who is without it? Is Mr. Fer? Then he tells us that I confess that I cannot understand scientific geologists; it is not likely that I can understand them—they cannot understand each other, for, let them be as numerous as they might, they all differ in opinion. Then Mr. Fer asks me if I will inform him how, and by what mode, I arrive at such a summary, as to call the whole scientific geology downright nonsense. I will tell him; I have long thought it was so, but what brought me to the conclusion in the matter was the *Mining Journal*—I think it is four of them back—wherein the Rev. Wm. Buckland says, at Leeds, that the great giant lay prostrate, and had his backbone snapped, and the upper coat of the great ocean was burst, &c.; that I thought was quite conclusive of the matter in question. But I do believe I have done the reverend gentleman good; he will never tell the people at Leeds such nonsense as that again. Then Mr. Fer says that I suppose 499 out of 500 that hear mineralogical lectures are as ignorant as myself. The men at Leeds certainly are; for, however clever they might be in their own business, certainly they must be as ignorant as myself as to mining and minerals. Then, with my new system of geology, he says he will not meddle with any further than to say, he can find nothing new in it. I beg leave to ask him, if he can find anything true in it? If he can he had better leave it alone, for, if it is fairly examined, it will upset the system of the schoolmen altogether; it shows them that coal will not have any other place in the earth but its own proper place, and that is above the mountain limestone; the schoolmen will tell us it is formed at the bottom of the sea—others that it is formed with vegetable matter, wood, &c.—another, in the *Mining Journal*, one or two weeks back, says at Ales there is oil, which, if left to settle, would become coal, and, moreover, in some other place animal remains are found imbedded in coal, in layers about two inches thick, but in such a decomposed state that it is difficult to identify the particular species (decomposed, indeed, it must be—it smells so bad, it actually stinks). Now, I will just ask Mr. Fer, and all the whole host of schoolmen, how is it, there being so many different ways of forming coal, and the operation going on so variously, and in and on all classes of stratification, and in different places, tens of thousands of miles apart—I ask, then, how is it that coal has never been found in nor under the old red sandstone? Some may have thought that Nature, in some of her wilder freaks, might have placed a little under the mountain limestone. Oh! no, no such thing; the coal, Mr. Fer, will, and must, have its own place in Creation. Then I am asked something about the 1200 feet upthrow that Mr. Buckland mentioned at Leeds, and talked to as though I thought it had taken place. I believe no such thing—I believe the stratification of the earth is now as it came out of the hands of the Maker of the earth; all upthrows and downthrows, as they are called, are now, I contend, just as they were placed at the formation of the earth.

"A Mining Captain" asks me some particulars regarding an upthrow fault in these mines of 255 feet; the line of dislocation is north and south; it throws up to the west, and the dislocation itself leans over to the west about 2 in 100; the dip of the strata on each side of the dislocation is nearly the same, about three inches in a yard, the line of dip being nearly west on both sides the dislocation, which is in width about nine feet, of mixed confusion; and now I am about that upthrow, I beg leave to make a few remarks. It will be remembered, that in the bursting of Mr. Buckland's great ocean valleys were formed, and rivers followed those bursted openings. The valley here does not do so; this great fault crosses the valley and river, not at right angles, but at an angle of about 45°. Now, according to Mr. Buckland, valley and river should have followed the bursting—that is, the line of this great fault. That fault has been traced by myself and others in a straight line—viz., north and south—across mountains and valleys for some miles; the upper formation of those mountains are composed of immense rocks 100 yards thick. Now, if ever that upthrow had been raised up by any revolution in Nature 255 feet, would not the whole of those rocks which form the upper strata of the mountain have been raised too? and would not the west side of the dislocation have presented a wall of rock 255 feet higher than was the rock on the east side of the dislocation? Would it not have presented a wall of rock all the way along the west side the dislocation?—frankly, indeed; the Chinese great wall would have been a trifle to it—or, if the great giant had shook his head when he raised himself up (as Mr. Fer has it), would not the scattered rocks all across the mountains have told the tale; there is neither a wall of rock nor scattered rock on the line of the fault. If Mr. Fer, or any other person, is pleased to ask me any more questions on this subject, I shall feel great pleasure in answering them.

Bismarck, Dec. 13.

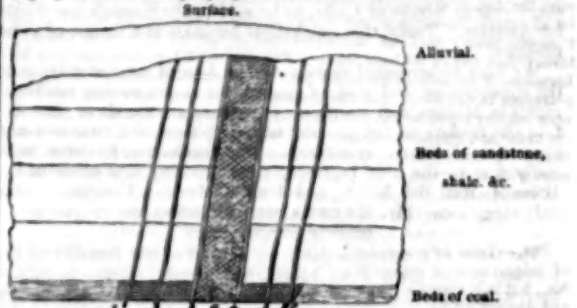
THOMAS DEAKIN.

ON THE FORMATION OF MINERAL DEPOSITS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—It is, no doubt, a prudent course for you to reject any communication which may have a tendency to bring on a theological controversy, in discussing the "Formation of Mineral Deposits," but, as hard names have already been given, may I beg to ask who most deserves the name of "unbeliever"—he who interprets Scripture as being opposed to geological facts, or he who maintains there is no such discrepancy, and believes, as an intelligent lecturer on geology states, that "the apparent discrepancy which in some cases seems to exist, is partly owing to our want of a full and comprehensive view of all the facts connected with the present and former structure of our globe, and partly to our not having hit on the true causes, or proper interpretation, of the Mosaic record;" and here I shall tell the theory, most respectfully, to advise those who theorize as loudly as who differ from them, to read over again, with care, that portion of Scripture which gives an account that—"In the beginning God created the heaven and the earth;" and where it is recorded—"He shaketh the earth out of its place, and the pillars thereof tremble;" the mountains quake before Him, the hills melt, and the earth heaves at his presence; great and marvellous are thy works, Lord God Almighty;" and when next those gentlemen come forward in defence of the truth, let them bring with them a little more modesty, humility, and charity, towards those who may differ from them—otherwise, whatever credit they may be entitled to, as being practical miners, it may appear doubtful if they are more than Christians in theory. Most men think their own prejudices are the truth, but it is only those who would prevent rational inquiry who may be said to have set their faces against the truth. Let me say also—I declare myself by a multitude of words, I shall conclude this time with a brief description of the "dykes" met with in coal-fields; but I shall not offend any of your readers by showing, but simply give a detail of appearances, and appearances which I have not only seen, but handled; but, although I may at times have flattered myself I could do so to some purpose with the pick, I confess I feel some diffidence in attempting to handle such matters with the pen, but I know I shall be excused for any "slips" of the pen, when it is known that my knowledge is purely derived from observation only.

not being so fortunate, or unfortunate, as the case may be, as to obtain any information in a "mining college"—perhaps, "both is best." The "dykes" met with in coal-fields are of two kinds, the greenstone, or trap dykes, and clay dykes, some of which are only a few feet, whilst others are several fathoms in thickness. The coal is generally found on each side of a "dyke," on the same level or inclined plane. Those called clay dykes are composed of the superincumbent strata, sandstone, shale, pieces of coal, clay, &c., &c., hard and soft mixed together hotch potch; on each side of these the coal usually holds perfectly good until it comes up to the "fault." With trap dykes it is not so; for five, ten, or twenty feet on each side of these, the coal is perfectly useless; at the distance of twenty feet or so it begins to lose its bituminous quality, and becomes, as we say, "a hard burnt crust," or "braised coal;" this hardness increases as we approach the dyke, and for the last few feet it is almost impossible to cut it with the best of picks, and its fracture has more the appearance of the broken end of iron or steel than sheets of coal. The open fissures between the coal and the dyke, as also those in the, apparently, calcined coal adjoining, are also important features in the case; the fissures are from a quarter of an inch to several inches in width, and penetrate into the underlying and superincumbent strata. The following is sectional sketch of a trap dyke, with accompanying rocks and fissures:—



At a is representation of trap dyke; from b to c, on each side of the dyke, is "troubled coal;" 1, 2, 3, 4, 5, 6, are fissures passing up through the cover rocks. Those dykes with accompanying fissures are usually perpendicular to the horizon, and the latter run always parallel to the former. Were we allowed to suppose that at any time the trap had been in a different state, and occupied a larger space, it might be concluded, that when it contracted it carried the rents into the adjoining strata. Whenever I have met trap dykes in a coal-field I have always observed large bodies of such in the neighbourhood, which would make it appear those dykes are branches leading from the main body.

A WORKMAN.

P.S.—Should the present prove acceptable, I may, on a future occasion, give a description of "slides" and "rips." Although my draughts may be rough, they shall possess the merit of being taken from Nature.

[We are, at all times, glad to hear from "A Workman," from whom we have another letter in type, the present having stood over from our last. We are glad to find that he has confined himself on one point, to the preliminary observations with which the above communication was introduced.]

MR. HOPKINS'S THEORY OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—"Geologists'" knowledge or ideas of the ethereal and atomic volume, and elements of metals, &c., &c., may be correct for what I know, but it is all Greek to us of the nether regions. What we want is, a simple theory, practically useful in our underground proceedings. Mr. Hopkins's theory is the first of that description promulgated to us miners, and may be considered the mechanism and geometry of mining. I do not pretend to know what the Phenicians knew, or discovered, in Cornwall; but we have been left without any assistance from them, or any of the modern scientific bodies, excepting what we have obtained ourselves, in the course of our mining operations. With the aid of Mr. Hopkins's theory, we can predict any phenomenon which may occur in Cornwall, or any other mining district, both as regards heaves, as well as the metalliferous contents of different veins. What other theory can do the same? Geologists, as you very properly remarked in a former Number, must have very vague ideas of the different formations, &c.; sometimes he appears to allude to something like our coal and iron beds, and at others the mineral veins of our primary districts. Until he becomes a little more practical, and dealing with facts, and his views rendered into plain English, it will not be necessary to reply to his observations. If Mr. Teesdale will permit my last, he will find out the cause of what he states relative to the heaves of the north.

A MINING CAPTAIN.

Portland place, Dec. 16.

ON THE FORMATION OF MINERAL DEPOSITS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I beg the favour of inserting this, if deemed worthy, in your next Journal. The subject of geology has been laid open for discussion in your late Journals, and though I admire the spirit of the letters of Messrs. Deakin and Hodge, for their firm adherence to the only true historical record of the earth's make and changes; yet I do not agree, that theoretic geology has done no good. Doubtless many subjects connected with the practical details of geology, are as well understood by the intelligent and observing miner, as they can be by any of the schoolmen of the day; yet the latter have observed carefully, and have searched extensively, and then, they have generalised to such an extent as to be able at least to interest and inform those, who have not the means of the miner of seeing these hidden secrets of Nature. This may be one reason why they receive more encouragement in manufacturing, than they do in mining districts. In many cases the practical miner may be the cleverest fellow, since his observations on that particular part with which he has been from his youth acquainted, may have been more extensive. They who investigate the world cannot be expected to mark the particular features of a given tract, as a man who has been gazing all his life only upon that particular tract. The general features of all climates have been, in a geological point of view, set forth, and brought generally to harmonise in those systems of geology commonly received. The cause of all formations, and the changes effected in any given time, as well as the cause of those changes, have, I believe, generally been the chief source of contention and difference among the most learned of the day. By whom will differences be adjusted? and when shall we expect all to harmonise on these subjects? Perhaps some one, with giant mind, may yet arise, and like Newton, in general physics, set all at rest—while this may be expected, all should agree to differ. None should be too dogmatical—none should indulge in chimerical rather than in rational deductions. There is a large and ever varying field for investigation, and all should labour only for the truth.

The subject of the coal formation has, as much as any, perplexed the geologist, and when we look at the subject carefully, we wonder not at the number of the theories already about concerning its formation. No less than six different theories have been entertained by men, even of the theoretic world, on this all important mineral production. 1. Many have thought that coal is just as it came out of the hands of the great Creator at the beginning. But this cannot be received, since rocks are found lying under the coal deposit, and they show themselves to be of mechanical and chemical formations; for they are full of the detritus of the primitive formations, which must have been for some time wearing away by attrition. 2. Others have supposed that the coal was found in the general chaotic fluid; but this also is not by the objection above, as well as before speculation for reception. 3. Some have supposed that coal is a mineral earth, and impregnated with bitumen; but this does not explain the similarity found to exist between the lignite and peaty formations, which are now advancing to a perfect state, and conforming to the present coal formation; nor for the many vegetable impressions so frequently found in and about the coal. 4. Another theory equally as untenable as any of the preceding, is that coal was formed of animal substances, consisting of the fat and sometimes matter of marine animals; but this also would be met by the above objections, and would leave the coal wanting of that in which it most abounds. 5. The most generally received notion is, that coal is composed of vegetable matter, of a loose kind, which, by frequent and extensive accumulations have been mineralised under vast weights. This also has many objections against it. It nowhere shows the appearance of woody fibre; and all vegetable impressions show that the vegetable that formed the formations have not been much disturbed. Besides, the variety of crystalline plants, and others that have been supposed

to bear their part in producing coal, might be expected to have a greater inequality than that which is generally found. 6. A more recent, and, we think, a more tenable theory is, that coal was formed in the sea, or in lakes, or in estuaries, from vegetables found therein produced, and then reduced from a succulent to a pasty substance, or even to a state of liquidness, so that we find it equally and evenly compressed, and often circulated between partings and other avenues of the adjoining strata. It seems to have settled on its base, or rocks prepared for its reception, as they were formed, and thence only have we so many slips, as they are called, and so many risings and fallings, and so many contortions; all of which show a great conformability in the materials of which coal was formed. On this subject, however, we can only arrive at conjecture, as Nature has left us no sure footstep, that we can trace her tracks. When or by whatever formed, however, we seem to learn the following things:—1. That it has been formed since the primary creation of the world. 2. That coal must be classed among the sedimentary formations. 3. That it was formed under the superintending providence of the great Creator, and kindly designed for the good of man. Doubtless we would all like to know the mystery, that is, as yet, hid from us; but this may never be granted, and what then? Shall we not thankfully receive the boon, and rather admire the donor, than quarrel about the method of its bestowment? Still let all search, investigate, and experiment, the practical as well as the theoretic man; until we shall, perhaps, at last hit on a more probable theory than has as yet been found. The study is interesting, and may be harmless, if we only go on in the path of rational induction. Many appearances in and about the coal formation, are peculiarly calculated to draw inquiry; and one in particular may be useful to the miner, that is, the cause and directions of the varied faults and dislocation found in these strata. If none else do, at my earliest convenience I may, should this meet with acceptance. U. THOMPSON.

Corn Amman, Dec. 8.

ON THE GENERATION OF METALS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Your correspondent, signed "Geologus," may have something of importance to communicate, relating to the generation of metals, &c., but it is essential to your readers that he should be more explanatory, and distinct under each head, and support his views in each case by reference to facts. I hope, therefore, he will favour us with an elucidation of the following points alluded to in his paper of the 28th November:—1. "Veins are often filled with the abstracted materials of the walls, occasioned by the violence which produced them." A proof of a violence is required.—2. "Mr. Hopkins's theory of the laminæ of the primary rocks forming, and being formed, vertically, instead of, as generally supposed, horizontally, is equally defective, and contrary (with occasional exceptions) to facts." This important question requires most minute explanation, inasmuch as Mr. Hopkins's theory has given to it an exciting interest; I presume "Geologus" understands the difference between primary schist, and the unquarrelled sedimentary strata, because the difference between the two is well known amongst practical men; therefore the two series should not be classed together. The facts in favour of the former being formed more or less vertical, and, therefore, not by mechanical deposition, are so numerous that it is indispensably necessary that "Geologus" should bring forward clear proofs against it.—3. "That mineral veins generally form in this manner, is too well known to require comment, being, in all probability, known to the Phenicians." In what manner?—4. The electric attraction between sulphur of lead and limestone rocks. This fact proved with something like precision, will be interesting. "Geologus's" attention to the above queries will be esteemed a favour. S. R. P.

London, Dec. 13.

MR. HOPKINS'S MAGNETIC CURRENTS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The writer of a very shallow article in the recent edition of the *Encyclopædia Britannica* states, with reference to Mr. Hopkins's theory, that the origin of fissures in which a great proportion of mineral veins occur is certainly proved to be either by molecular attraction causing contraction of the mass of rocks, and thus generating joints or divisional planes, or by the tension of elevatory forces. These and other opinions, thus dogmatically laid down as indisputable truths, would be very well in their way in a purely speculative work, issued with the author's name attached to it, but it is really too bad to make a public standard work of reference the vehicle of conveying individual speculations, which gleam out of every department of the lengthy article in question. With reference to the above quotation, it is true that physical attraction causes gaseous or aqueous compounds to concentrate within a particular space, and that chemical affinity causes molecular particles to adhere together, but this separation of parts in sedimentary or other depositions takes place, in general, previous to the matter consolidating, or crystallising as rock, and, in the majority of instances, these joints, or divisional planes, are formed, not, as here asserted, by contraction of rocks, not by elevatory forces, but in obedience to the laws of affinity and force, manifest in all disintegrated masses; but, still, it is very rarely the case that these veins are metalliferous in this early stage of formation, but the nature of the material of the vein is such as to successfully resist the action which converts its matrix into one consolidated mass, and in this state it becomes the recipient body of the metalliferous matter which is introduced, sometimes by precipitation from intruding acids, holding in suspension some of the various metals, the molecular particles uniting with the earthy material of the vein, and succeeding depositions occur in like manner, the gold, silver, lead, tin, copper, &c., being immediately precipitated by the previously existing metals. Thus it is, many of the chief veins supposed by Mr. Hopkins to be deposited by electric action, are the results of chemical precipitation, and the disposition of the vein depends entirely upon its primary nature, and the nature of the material in which it is disposed: in these remarks I am speaking of veins of Nature, and not of fracture. The vein stuff in the one, and the other generally differs from the matrix in which it is imbedded, and this fact alone is quite sufficient to overthrow the notions of Mr. Hopkins; for, however far we might be disposed to accord with him in opinion that the metals were forced into the rock by electric currents, still it cannot be maintained that the vein stuff also moved in obedience to the electric currents, nor are we aware that these currents form alloys. The beds of silver, lead, and galena, are sometimes as well defined in their development as are many of the coal beds, being evidently generated in those particular, and uniting with the primary material, and sometimes they are wholly free from veins of continuity. Why, then, if the electrical currents thus swept over and through the north, from north to south, are these beds passed by unregarded? Are we to be told that the matter has been abstracted from the surrounding rocks, and united in these ponderous masses by a displacement of matter in similar quantities? Certainly, this is not the case. Let any one, unfettered by theory, examine beds of clay while in their plastic state; here they observe segregation take place, of both silica and calcareous; the first unites in nodular concretions with the clay which it envelopes—the latter concentrates in the line of its deposition in net work, strings, or veins, of larger dimensions, separating from the clay, and crystallising independent of it: here thermo-electricity may assist, may call into action the combining bodies, which thus become one peculiar result, but the line of action is the line of the salt, which thus becomes the conductor of the electric fluid, governing the direction of the fluid, but being willed in its disposition by the electric fluid, as also by the body with which it unites. Again, the mineral matter, in veins of fracture, keeps the line of these veins detaching themselves when it comes in contact with primary veins, having matter to which it has an inclination, introducing itself both into the material of the dislocation, and into the branching veins, either suspended in the dilated arches, from whence it is precipitated, or else in the expanded or volatile state, and attaching itself in condensation to various substances, preferring those to which it has an affinity. The gold mines on the south-western coast of Africa are situated in the fork of a river; the bed is coarse, magnetic ore, and red marble; the gold, on precipitation, attaches itself to the magnetic iron in such quantities of minute specks as to lead the mine to suppose that it is generated from iron. The gold mines of Winkfield present the like phenomena, and the like opinions—rather singular to say—have been handed by those to whom they now belong; but gold, like all other metals, is found under many and various aspects, pure or compounded, in veins, in beds, and scattered through the surface soil. Looking at the quantity of sulphur and arsenic abounding in almost all mines, and the chemical nature in union with oxygen, chlorine, and other inflammable bodies, it is much more rational to conceive, that they are not only the proximate causes of generation of many metals, but also that they are the introducing

agents of these metals into all pores and interstices of the surrounding beds, where the metals are precipitated and the acids unite with the imbedded earths, composing these primary veins, giving character, not only to these several matters, but also to the walls, floor, and roof of the vein, and where the superincumbent strata is of a porous nature, penetrating to the surface of the earth, its molecular particles attaching themselves to the various metals disseminated through the material of the bed; thus, the surface bed, rich with pyritous matter, awakens the miner to the almost certainty of finding his quarry beneath. Mr. Hopkins speaks of the whole surface of our globe moving northwards several seconds per annum, and thence he would account for all the phenomena of change, as well as of mineral beds, elucidating all physical facts disclosed by geology. But his theory of gradual change ill accords with Nature; this portion of the earth—say, the polar circle itself—was once beneath a vertical sun, and, consequently, within the tropical band; geology does not attempt to account for this, but, at the same time, it distinctly notices sudden and violent changes, widely marked and clearly defined; the natural philosopher takes a more expanded view of these changes; the evidence of vast herds of elephants, once treading the plains of Siberia, of magnificent tropical forests, of animals and vegetables peculiar to tropical lands, and of coral formations and marine animals peculiar to tropical seas, tells him at once what they were, and that the change, the violent change, of the earth's position, by which one-fourth of the globe was swept by the hand of death of its varied inhabitants, was as sudden as it is strongly marked. Not so with Mr. Hopkins; he would give us a gradual—say, an almost imperceptible change, by which the earth performs its revolution towards the north. Cambridge, Dec. 15.

A WERNERIAN.

SMOKE PREVENTION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—In reference to the letter of "A Manufacturer," in last week's Journal, I have to assure him the subject of smoke prevention, and the plan adopted by me, has not lost its interest, if I may judge, from the facts, first, that it is daily finding more favour with the public in the manufacturing districts in England and Scotland, and, secondly (as conclusive proof, perhaps, as could be mentioned), that the attempts at imitation and infringement are more numerous. People will not be at the trouble or risk of imitating what is worthless. There was a time when I was charged with the "gross ignorance," for attempting to burn, and thus convert to heating purposes, the combustible gases from coals in a furnace, by admitting air to them behind, or beyond the bridge, indeed, all imaginable injuries were anticipated from such a process. These consequential damages, and the ingenious absurdities by which they were supported, are already forgotten, and several, who are now seeking favour as "smoke burners," are merely contriving to effect their purpose by modifications of the very plan to which they were hitherto so opposed, and on the principles laid down in my *Treatise on Combustion*, thus practically illustrating their correctness. Among these, the most unworthy, as being the more barefaced, is that of Mr. Joseph Williams, of this town, to which your correspondent has referred; on this subject, I beg to refer your readers to the advertisement of Dircks and Co., taken from the Liverpool papers, and which I now request may be inserted in next week's *Mining Journal*, as a permanent record.

With respect to the correspondence between Mr. Samuel Hall and myself, I have been looking for your promised editorial comment; on this head, I am glad to find the subject is still considered as not unworthy of your notice. Your correspondent, "A Manufacturer," observes, that the discussion "was never brought to a close;" and, in your note on the same, you say you have been "resting for information." On my part, I replied to all Mr. Hall's observations that required notice, since when, that gentleman has been silent. It is true, I undertook to prove that his patent, as applied to the *Star* locomotive, on the Liverpool and Manchester Railroad (and which he has since abandoned as a bad job), was an infringement of my patent. I also undertook to show that it was *void* and *not* *void* air that Mr. Hall introduced, and, further, that the attempt was done so clumsily, and with such violence to chemical and practical truths, as to justify its failure. In due time I will redeem my promise, with your permission. The matter, however, is not pressing, and it would, I feel, be manifestly unwise for me to show Mr. Hall in what his blunders consisted, and thus, while he is yet experimenting, give him the power of adopting any suggestion I might make, or correcting the errors into which he has fallen. In any comments which you may make on the correspondence between myself and Mr. Hall, I trust, Sir, you will not omit reference to the pamphlet by Mr. West, of Leeds, and which I quoted in justification of my having called Mr. Hall's patent of 1838, his *second* rather than his *third*, and for which the latter has so repeatedly charged me with unfairness. C. W. WILLIAMS.

Liverpool, Dec. 12.

[Our correspondent will find some observations on the subject in another column. We have not taken special notice of the charge of "unfairness" to which he refers, for the error was one into which, not only did the meeting at Leeds fall, but we have to admit, that, for some time, we were under the like impression, after much correspondence had taken place, and inquiries instituted—indeed, the patents of 1836 and 1841, we at all times were given to understand were those on which Mr. Hall relied, that of 1838 being a link in the chain.]

NEW THEORY OF APPLYING STEAM TO AN ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I shall endeavour to show the difference between your correspondent's views, regarding the benefits of condensation, with the plan I propose of condensing the steam in a close condenser, from which the air is exhausted, for the purpose of feeding the boiler with distilled instead of sea water. As steam from water at 212, and even below this temperature, will oppose the entrance of air into a boiler, it therefore follows, that water at this temperature is equal to the pressure of the atmosphere. I propose that condensation should not be carried further than water at 212° of heat; and suppose the engine worked with steam from water at 249° of temperature, the difference of 28° above the boiling point, will be the effective pressure employed. By this plan of condensation, the greatest apparent gain, when pushed to its greatest possible extent—namely, 60° of temperature—would be 1 lb. of pressure, or the steam from water at 212°; but it must be remembered, that in the one case the boiler is fed with water at 60°, while in the other case, with water at 212° of temperature, proving that there is no gain by condensation; on the contrary, as already said, in certain circumstances there is a positive loss, even with the improved condenser, to say nothing of the additional loss when the present condensing apparatus, with an air-pump, is used. According to the view that your correspondent takes, a condensing engine, worked with 1 lb. effective pressure on the piston, would produce nearly two-thirds of the power that the same engine would yield, with an effective pressure on the piston of 19 lbs., although, in the latter case, there would be ten times more steam used!—namely—

1 lb. effective steam pressure	19 lbs. effective steam pressure
14 atmospheres	14 atmospheres
12	28

This is your correspondent's theory. I should like to know how it corresponds with practice. Mr. David Napier would, perhaps, be kind enough to solve this question. I believe, that even with less than 19 lbs. effective pressure on the piston, Mr. Napier's *Ramsgate* steamers will perform 10 miles per hour; while, with 1 lb. effective pressure on the piston, their speed would not be six miles an hour, even with a perfect vacuum; for it is evident, that if there be any thing like an approach to a vacuum, when 19 lbs. pressure steam is used at such a speed, what must the vacuum be, when not a sixteenth part of the steam passes into the condenser? I am not an engineer, and I have no practical knowledge of the working of Cornish engines. My remarks had reference more to steam-hoist engines, and engines for working ore and other mills, where a constant and continued power is required. Your correspondent is the first person I ever heard say that high-pressure steam is more economical than low-pressure steam, and, I think, if he had studied evaporation more, that he would not have been so much in an opinion. Your correspondent has said nothing to affect my theory of applying steam or water to an engine. Leeds, Dec. 13.

GEORGE GOSLEY.

ELECTRO-MAGNETISM AS A MOVING POWER.—MR. DAVIDSON.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Observing, in a letter signed "Electricus," published in your paper of last Saturday, some severe statements thrown out against Mr. Davidson and his exhibition, I am sure your sense of justice will pardon me for uttering a few observations in vindication of a gentleman so scientific and unassuming as I have found Mr. Davidson to be, and who, in

coming amongst us almost an entire stranger, ought, I humbly submit, to have received more courtesy than "Electricus" has been pleased to bestow upon him. "Electricus" is candid enough to admit that he "is not a practical man in electro-magnetism," and yet "he questions very much the existence of a power, such as shown by Mr. Davidson's experiments, anything like sufficient for the propulsion of heavy machinery." I would advise "Electricus," before too confidently hazarding such an opinion, to take warning from a certain learned doctor (whose opinion was looked up to at the time as very high authority), who, we all recollect, only a very few years ago attempted to prove the impossibility of a steamboat being able to cross the Atlantic, but who very soon afterwards was glad to escape in one to the New World, in order to avoid the penalty imposed by the offended laws of his country. Mr. Davidson, however, is not only blamed for not being able to create power sufficient to propel heavy machinery, but he is also accused of "having proceeded much further in his experiments, and of having gained more knowledge on the subject than he wishes his inquiring auditors to learn." I know nothing of Mr. Davidson beyond what I have seen of him here, and the highly satisfactory notices which have been taken of him and his monitors in the press of his native country; but I am informed that he has devoted many years of anxious labour to the development of his interesting discovery, and if that is the case, can any one, I ask, "not acquainted with electro-magnetism," reasonably expect that he can learn at one exhibition, and at the expense of a shilling, that which has cost the inventor so many years of unwearied exertion to acquire. Mr. Davidson propels machines by electro-magnetism, but I have never heard that he professes to touch by electricity. If "Electricus" has really "a love for the advancement of science," and a desire to acquire a thorough knowledge of Mr. Davidson's experiments, I would recommend him to visit the Egyptian Hall as often as I have done, and, if he does, I will venture to say that he will alter his opinion, both of Mr. Davidson and of his exhibition, and will find him to be hereafter not a mere showman, but in reality a person possessed of much scientific knowledge, which he will communicate in a frank and intelligent manner. AN ADVOCATE OF ELECTRO-MAGNETIC POWER.

St. James's-park, Dec. 14.

ELECTRO-MAGNETISM AS A MOTIVE POWER.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The very illiberal attack upon Mr. Davidson by "Electricus," is only such as might be expected from one who, as he himself confesses, is ignorant of the subject on which he writes, but yet presumes to give his unqualified opinion. The results of a man's intellectual labour are his own, to give to, or to withhold from, the public as his inclination or interest may direct. Mr. Davidson appears in public such as he is—a plain, unpretending, practical man; he has expended much time and money in experiments, which, if successful, would most assuredly benefit the millions inhabiting the earth. He has succeeded to a certain extent, sufficient, indeed, to convince scientific men that much more may be done; beyond this extent, his means will not reach, he, therefore, appeals to the intellectual portion of the community, in the, I fear, barren, hope of finding patrons and friends, stating candidly, that with apparatus of greater magnitude, and the means of making experiments, he has no doubt much more may be done. What right, I ask, has "Electricus," or any other anonymous scribbler, to call upon Mr. Davidson to render up secrets, if he have any, which, resulting from the toilsome application of the mind and body, are his own, and may eventually prove beneficial to him? To be the mere showman is his misfortune, and the shame of a cold calculating community; the shame of those who squander their thousands in vain and frivolous pursuits, and leave modest merit to work its own way through the midst of insurmountable difficulties. As a mere mechanic, Mr. Davidson has done more towards promoting this really desirable object than Jacobi and other scientific men have done. If Mr. Davidson has any secrets, I trust he will have the good sense to keep them to himself, until assured that he will derive profit from them—publish them at the dictum of such *Amor mundi* men as "Electricus," the literary drone of society would acknowledge the obligation, by being the first to puff his thoughts, and then to condemn his simplicity. I hope these remarks will elicit from "Electricus," in his future visits, a spark of better and nobler feeling, and, if he cannot lend his aid in the pursuit of a truly universal object, that he will, at least, have the modesty to remain silent, on a subject of which, by his own confession, he knows nothing. Grosvenor-street, Dec. 14.

AN ENGINEER.

CARN BREA MINES.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I have read, with much surprise, the leading article in your last week's paper, and having furnished you with my name and address, I venture to hope you will give insertion to the following observations:—It is unnecessary to enter into the causes of the temporary embarrassments of these mines, but it is a simple set of justice to state, that they do not originate from misplaced confidence in the agents of the mines, or, as you appear to think, from ingratitude manifested towards the late treasurer; such is not the impression of the latter, or any of his friends; and I must be allowed, as a well wisher to both, to express a regret, that a public journalist should have made a personal charge, which a little inquiry would have convinced him was unfounded.

Attempts, happily unsuccessful, have been made by wicked and designing persons, to sow dissension between the two parties alluded to. Meetings are daily held for the purpose of taking advantage of their embarrassments, and every effort is being made to lower the character of the mines, and depreciate the value of shares. Such attempts will fail. The Carn Brea Mines are the best in Cornwall, and, I may add, in the world; for it is now certain, that we have little to fear from foreign competition. This is known, and it occasions every device and variety of scheme to get ahead. The adventurers know the value of the mines, and are content to wait the result of an investigation of accounts, and remodelling of the financial system. The parties interested have adopted a well considered plan, by which justice may be secured to the creditors and the adventurers; and I have satisfaction in stating, that I have no doubt that within a short period the profits will be divided amongst the adventurers, without any allusion to them. Let me invite any shareholder, who feels a distrust in my statements, to investigate the proceedings of the committee, and cause the mines to be inspected. It will then be seen if something is not due to him, whose energies have developed and perfected this brilliant undertaking, and you will, I hope, recall the unjust attack on him, and on the mine agents of Cornwall. I think it right to add, that I shall not assume the subject in your columns, nor shall I think it necessary to notice letters from interested parties here, purporting to come from Cornwall, though, I am sorry to say, there are many in that county who are plotting to get shares. To them I will say, "Wrangling is not a safe nor an honest occupation, and it has been for some time abandoned on your coast." The vessel they had hoped, and believed to be, "on the rocks," is yet far from the breakers, and, if I may be allowed to carry further my metaphor—she walks the waters like a thing of life, and seems to defy the elements of death.

Dec. 14.

AN ADVENTURER IN CARN BREA.

SOUTHAMPTON DOCK COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Having read with attention the very clever letters of "T. R.," as regards the want of management and attention on the part of the directors of the Southampton Dock Company in the interests of the shareholders, and as he made assertions, some of which I know to be untrue of fact, I was led to believe that equal confidence might be placed in others. I am, however, at a loss to understand how it is he has allowed himself to be set down by the secretary, without the secretary is right, and "T. R." wrong. If such be the case, then, I think, it would be only justly and properly that "T. R.," after consulting the books, should admit himself to be in error, and, on the other hand, if, after examining the books, he finds that his charges are made out, then, in common justice to the proprietors, who have left in his able hands the investigation of all the facts or difficulties connected through your columns, he should divulge the contents of the private books, which no shareholders in the company have to see. I am bound, to say that any inquiries I have instituted, have always been met in the most courteous and candid manner by Mr. Davidson; but, still, I may not so well understand the subject as "T. R.," and I trust he will, through the *Mining Journal*, at once give, or inquiry (which, I presume, he has already made) that either the company or himself are in the wrong. His silence would induce one to think the latter, but as I know him to be a business man, perhaps his silence arises solely from his desire to complete his case. Under any circumstances, I, for one, should like to know what are the facts. Southampton, Dec. 14.

A COURTESY SHAREHOLDER.

